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• Missouri. Mines Bureau.
— Annual report 1899/1900 [part 2].
— 14TH ANNUAL REPORT

OF THE

STATE COAL MINE INSPECTOR

OF THE

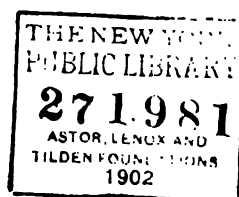
STATE OF MISSOURI

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WYOMING
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VIA RAIL

LETTER OF TRANSMITTAL.

City of Jefferson, October 15, 1900.

Hon. LON V. STEPHENS, Governor of Missouri:

Sir—In obedience to the requirement of law, I have the honor to submit the Fourteenth annual report of the Inspector of Coal Mines and to thank you for the uniform kindness and consideration shown me through your entire administration.

Very respectfully,

CHAS. EVANS,
Inspector of Coal Mines.

ROY VAN
DUN
VASSU

INTRODUCTION.

The Inspector in presenting the 14th annual report on the coal mines of the State for the fiscal year ending June 30, 1900, feels warranted in pronouncing the physical condition of our mines far more satisfactory than they have been found at any time in the mining history of the State. The efforts made by the management of our mines and the application of every well known and practical device for arriving at the greatest possible security for miners and mines, has produced a marked effect in the betterment of both, in so far as their safety and sanitary condition are concerned. In this respect they are surpassed nowhere in this country.

It is gratifying to the Inspector to note the changed relations existing between the larger operators and himself. They now look upon the Mine Inspector in the light of a friendly assistant in all that pertains to the welfare of miner and mines, instead of being regarded as a mere spy attempting to annoy and make trouble. This feeling of a mutual interest in securing the best possible conditions lessens very materially the duties of the Inspector, as there is now a willingness to accept suggestions for the betterment of our mines without hesitancy, where formerly such suggestions were neglected altogether if possible and if accepted, done so grudgingly and under protest.

The duties added to the already onerous duties of the Inspector, especially that of inspecting scales, has required many extra trips and occupied much of his time in connection with nearly 500 inspections of the mines that had to be made. Was it not that the last Legislature provided for our having the undivided attention of our Assistant (Mr. Marsteller), whose familiarity with every detail of our work relieves us of so many duties it would be impossible for us to give that attention to our field duties that they demand.

The effort has been made in this report as heretofore to embody such articles concerning coal mining as may, we hope, prove helpful. Our remarks relative to the condition in which the respective mines were found will convey an idea of the numerous improvements made as well as indicate the duties performed by the Mine Inspector.

BOY WEN
CLUB
YSAH

REPORT.

For our fiscal year ending June 30, 1900, we record a shortage in the output of our mines amounting to 196,789 tons. This shortage is due to the sympathetic strike which was in existence when our year commenced and continued throughout the year. The strike was not the result of any difficulty between our miners and the operators of this State, but was simply a suspension of work at certain mines to aid, as it was thought, the miners of the Indian Territory who were on a strike. This suspension of work seriously affected the operations of some of our largest mines, with the result that while we would have had a largely increased output this year we have instead a shortage. The selling price of our product has increased by reason of the difficulties mentioned at some of our largest mines, which had the effect of reducing our output in the face of a good demand for coal. There is, therefore, some comfort in the situation by the fact that while our output was less, yet its value was greater than last year by \$61,865.

The promise for a larger increase in our coal output for the current year is excellent; this impression is based upon the fact that all of our mines are now well supplied with orders and the opening up of several new and extensive plants.

The output of our mines for the year was 2,995,022 tons. The average price received for the product at the mines was \$1.21 per ton, with receipts from the same amounting to \$3,643,975. Coal was mined during the year in 36 counties, there being 350 mines operated, of which 149 were shaft openings, 59 were slopes, 81 drifts and 60 strip-pits. During the year 12 new mines were opened and 4 old mines were abandoned.

During the winter season there were 7,055 miners and 1,643 other help employed, while for the summer season 5,300 miners and 1,298 other help was employed, with an average of 6,177 miners and 1,470 other help for the year. The total number of employes during the winter was 8,698 and for the summer 6,601.

There were 69,460 kegs of powder consumed in the mines, which

cost the miners \$138,533.80. Out of 350 mines 27 per cent of them used powder and mined nearly three-fourths of the coal.

There were 33 accidents at our mines, 10 of which were fatal and 23 non-fatal. Of the fatal accidents 4 were unavoidable and 6 were due to the carelessness of the victims. Seventy per cent. of the accidents were due to falls of roof, 15 per cent. to falls of coal, 6 per cent. to mine cars, and 3 per cent. each to blasts, fall of material down shafts and falling on moving objects.

Year ending June 30.		1899.	1900.	Increase.	Decrease.
No. of coal producing counties (reporting).....		36	36	.....	.....
No. of mines operated, including strip-pits.....		369	350	.....	19
No. of mines in which ten or more men were employed.....		114	138	24	.....
No. of fans in use during the year.....		50	61	11	.....
No. of tons of coal mined during the year.....		3,101,311	2,985,022	.....	106,789
Total amount received for the output.....		\$3,582,111	\$3,643,975	\$61,864	.....
Average price per ton received at the mines.....		1 12	1 21	09	.....
No. of men employed during the winter.....		8,806	8,698	.....	108
No. of men employed during the summer.....		6,778	6,601	.....	177
No. of miners employed during the winter.....		7,195	7,055	.....	140
No. of miners employed during the summer.....		5,393	5,300	.....	93
No. of other employees during the winter.....		1,611	1,643	32	.....
No. of other employees during the summer.....		1,385	1,398	.....	87
Total number of kegs of powder consumed.....		66,714	69,490	2,746	.....
Total cost of powder.....		133,436	138,538	5,202	.....
No. of men fatally injured.....		14	10	.....	4
No. of men non fatally injured.....		23	23	.....	.....
No. of wives made widows.....		5	4	.....	1
No. of children made fatherless.....		13	7	.....	6
No. of tons mined for each life lost.....		227,986	399,502	71,516	.....
No. of tons mined for each non-fatal accident.....		138,774	130,218	.....	8,556
No. of new mines opened.....		11	12	1	.....
No. of mines worked out or abandoned.....		6	4	.....	2

TABLE II.

Table No. II is a record of new mines opened up and of the old mines worked out and abandoned during the past year.

No. of new mines.	Name of company opening new mine.	County.	Name of company abandoning mine.	No. of mines abandoned.
1.....	Hall & Fletcher.....	Barton.....	.....	.....
1.....	Western Coal & Mining Co.....	".....	.....	.....
1.....	W. S. Dickey Coal Co.....	Henry.....	.....	.....
1.....	Thos. Boyd & Son.....	Johnson.....	.....	.....
1.....	Labor Exchange Coal Co.....	Lafayette.....	.....	.....
1.....	Northwestern Coal Co.....	Macon.....	.....	.....
3.....	Kansas & Texas Coal Co.....	".....	Kansas & Texas Coal Co.....	2
1.....	Mendota Coal Co.....	Putnam.....	Mendota Coal Co.....	1
1.....	Richmond & Camden Coal Co.....	Ray.....	.....	.....
1.....	Central Coal & Coke Co.....	Vernon.....	Central Coal & Coke Co.....	1
12				4

Improvements in Coal Mines.

Counties.	Coal company.	Improvements.
Adair.....	Rombauer Coal Co.....	Ten 2-room dwelling houses for miners, 9 4-room houses and 40 new pit-cars.
".....	C. B. Haven Coal Co.....	New escapement shaft, ladder put in, addition to pit-head and 500 feet extension of switch-track.
".....	American Fuel Coal Co.....	Ten 3-room dwelling houses for use of miners.
".....	Stroup Coal Co.....	New drift opened and furnace built.
Audrain.....	O. F. Hafner.....	Ditch excavated for drainage 400 feet long, 11 feet deep.
".....	Farber Coal Co.....	New fan in place of furnace, two new cages and 10 new pit-cars made.
Barton.....	Wear Coal Co.....	Seven new 3-room houses for use of miners.
".....	Josiah Short.....	New air shaft.
".....	Hall & Fletcher.....	New slope opened, new tippie and weigh-house erected and furnace built.
".....	Swigart & Son.....	New shaft sunk and equipped with horse-power apparatus; also air shaft sunk.
".....	John J. Prosser.....	Opened a new slope.
".....	J. W. Bell.....	New tippie erected.
".....	Boulware Bros.....	Shaft sunk and equipped with the latest improved machinery. An electric plant erected, new engine, ropes and boiler house built; also pit-head, weigh-house and shaker screen, erected with cages, ropes and safety appliances, all new. Escapement shaft sunk, a 16-foot fan set and a stairway built, a machine shop erected, 50 new pit-cars built and about 1 mile of railroad and switch-track built, and 50 houses for miners of 2, 3 and 4 rooms.
".....	Western Coal Co.....	Two electric haulage motors at mine No. 15, and 8,000 feet of new railroad for same in mine with heavy rail.
Bates.....	Rich Hill Coal Co.....	Tippie and tramway.
".....	J. C. Griggs.....	One gasoline oil-pump and portable boiler.
".....	Robt. Pearson.....	Ten new pit-cars, 400 feet new entry track.
".....	J. N. Tatley.....	New air-shaft.
".....	Henry Washburn.....	New dump and scale, and 200 feet of track from scale to mine.
".....	Price, Casewell & Co.....	New air-shaft.
".....	Stephens Bros.....	New steel hoisting rope.
Boone.....	Jas. H. Keene.....	Escapement shaft sunk and mine re-opened.
Caldwell.....	Kingston Coal Co.....	Two new cages built, one new hoisting rope and a ladder built in escape shaft.
".....	Caldwell Coal Co.....	Re-timbered shaft.
Callaway.....	Fulton Fire Brick & M. Co.....	Sunk air-shaft.
".....	Smith mine.....	Escapement shaft sunk, and half a mile of tram-road built from mine to railroad.
".....	Oreighton Coal Co.....	Two new hoisting ropes, one new cage, new front for boiler and iron track in mine.
Cass.....	Missouri City Coal Co.....	New drift opened.
Clay.....	J. H. Young.....	Ditched 200 feet and put in tiling.
Cedar.....	Robt. McClure.....	Two new cages, two new hoisting ropes, repaired and reset boilers, large barn erected, and now sinking-shaft to bottom vein.
Dade.....	Grundy County Coal Co.....	Two new cages.
Grundy.....	Medicine Valley Coal Co.....	Air-shaft sunk.
".....	John Hurst.....	Air-shaft sunk, $\frac{3}{4}$ of a mile of a tram road erected from mine to railroad, and a new tippie and and weigh-house built.
Henry.....	D. B. Pigg Coal Co.....	New smoke stack.
Henry.....	Brush Creek Coal Co.....	
Jackson.....		

TABLE 10.—Continued.

Condition	Improvement	Improvements
Bulldozing	Bulldozing	Bulldozing and more equipped with new heavy job shaft truck. Two erected and 20 new pit-cars built.
Bulldozing	Bulldozing	Bulldozing and more equipped with new heavy job shaft truck. Two erected and 20 new pit-cars built.
Bulldozing	Bulldozing	Bulldozing and more equipped with new heavy job shaft truck. Two erected and 20 new pit-cars built.
Bulldozing	Bulldozing	Bulldozing and more equipped with new heavy job shaft truck. Two erected and 20 new pit-cars built.
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Bulldozing	Bulldozing	Bulldozing and more equipped with new heavy job shaft truck. Two erected and 20 new pit-cars built.
Bulldozing	Bulldozing	Bulldozing and more equipped with new heavy job shaft truck. Two erected and 20 new pit-cars built.
Bulldozing	Bulldozing	Bulldozing and more equipped with new heavy job shaft truck. Two erected and 20 new pit-cars built.

Montgomery.....	William Biddleman.....	Furnace built.
Putnam.....	Mendota Coal Co.....	Retimbered escape shaft as in No. 2, opening of mine No. 3, new tippie and weigh-house built and a railroad track scales put in, air-shaft sunk and furnace constructed, and about a mile of railroad track with switches.
Putnam.....	Rodger's Bros. Coal Co.....	Building new furnace.
".....	Emporia Coal Co.....	Putting in a new fan and an engine.
Balls.....	Fitzpatrick Bros.....	Air-shaft sunk.
".....	Ralls County Coal Co.....	Thirty new pit-cars made.
Randolph.....	Jones & Davis Coal Co.....	Two new ropes and 40 new pit-cars made for Mine No. 5. Two air-shafts sunk and two furnaces erected.
".....	Elliott Coal Co.....	Fifty new pit-cars made for the Santiago mine, and a new locomotive supplied.
".....	Cooper & Stackhouse.....	Second air-shaft sunk.
".....	John J. Lewis.....	New furnace built.
".....	Higbee Coal Co.....	Re-built, overcast and cleaned air-ways.
".....	J. F. Robinson.....	Air-shaft sunk.
Ray.....	Pence & Cainen Coal Co.....	Fan substituted for a furnace.
".....	John J. Kallenberger.....	Coal-shed built 45 by 16 feet.
".....	The Major Grimes Mine.....	Fan erected for ventilation.
".....	Richmond Camden Coal Co.....	Machinery removed from Mine No. 3, repaired and re-set. A new engine and boiler house built and a new pit-top and weigh-house erected, 50 new pit-cars built and repaired and a railroad switch constructed.
".....		Cages repaired and new safety-catches supplied.
".....	Murlin Coal Co.....	Equipment of Mine No. 9 removed, repaired and re-set. Head-gear built, and a new top-house and weigh-house erected. Escapement shaft sunk, a stairway built and a fan set, two miles of railroad track and switch constructed.
Vernon.....	Central Coal & Coke Co.....	

TABLE IV.

Summary of classified improvements at the mines for year ending June 30, 1900.

Bollers.....	16
Box-car loader.....	1
Cages.....	12
Catches on cages.....	10
Coal chutes.....	1
Cages repaired.....	2
Electric plant.....	4
Engines, new.....	5
Engines repaired.....	3
Boiler-houses, new.....	8
Entries enlarged.....	9
Fans erected.....	14
Furnaces built.....	9
Furnaces repaired and enlarged.....	4
Gasoline pump and boiler.....	1
Houses built for miners.....	251
Iron tracks substituted for wood, feet.....	5,300
Overcasts put in.....	2
Machinery in place of hand-power.....	4
Pit-cars built and renewed.....	511
Pit-heads erected.....	8
Pumps.....	1
Ropes, hoisting.....	17
Scales.....	5
Screens.....	4
Shafts, new.....	5
Shafts, air and escapement.....	30
Shafts retimbered.....	3
Side-tracks, feet.....	147,300
Stables.....	2
Stairways in escape-shafts.....	6
Tipple-houses.....	14
Tracks in mines, feet.....	27,000
Blacksmith shops.....	2
Smoke stack.....	1
Slope openings.....	5
Locomotive.....	1
Switches put in.....	11
Coal sheds.....	3
Windmills.....	3
Weigh houses.....	10

MISSOURI COKE.

Experiments have been made for the manufacture of coke from our Missouri coal at Huntsville, Randolph county, with very flattering results. When the subject was first mentioned to our operators they expressed some skepticism in achieving good results from the attempt to manufacture coke from the soft bituminous coal like that produced in Missouri. After, however, the first test was made under the new process of making coke and it proved a complete success, coke making in Randolph county passed from the experimental stage to one of an assured fact. It is now the hope that this county will be able to furnish the great smelters of the West with that supply of coke that they have heretofore been compelled to ship from Pennsylvania, as the most of it has come from the coke ovens of Connellsville.

This new process for the manufacture of coke was introduced by one Mr. Hemingway, but we understand the patent right has passed to the control of the Leitters of Chicago, they having purchased it.

The ordinary bee-hive oven, is used (taking its name from its shape) and as a rule about six tons of coal is considered a charge. The heat retained by the fire-brick walls of the oven ignites the coal; the drawing door is walled up after the charge has been leveled off and a space of about three inches square only is left in the side of the oven. As soon as the coal flames up, a volume of hot and cold air is forced into the oven just above the top of the coal; this hot air is heated by passing the air over heated fire-brick checkers, placed in a furnace external to the oven; the air is forced through the hot checker work by means of a blower, entering the oven at a temperature of about 500 degrees F.; the cold air is also forced into the oven. The quantity or volume of hot and cold air varies with different grades of coal, the object, however, is to rapidly increase combustion. Just as soon as the heat on top of the coal is high enough more hot and cold air is forced into the oven, thus increasing the pressure and forcing the heated gases downward; that is, the heat on top of the coal is rapidly carried to the center of the charge of coal and being subjected thus quickly to a strong or coking heat, yields a hard coke from what was heretofore termed a non-coking coal. The writer was at Huntsville during one of the experimental tests and witnessed a charge taken from the oven; this test when compared with a former test showed a vast improvement in the product, which was due to a more thorough heating of the oven. At the time of our visit to this plant

the experimental arrangements for the manufacture of coke were of a rather crude nature as no provision had been made for washing or cleaning the coal of its impurities, but as soon as the necessary arrangements are perfected the quality of the coke will be much improved. We feel confident from our observations that when the facilities for properly cleaning the coal and the other improvements now under way are completed, that the coke produced from Randolph county coal will equal any other coke made in this country.

The smelters, foundries and metal works of all sorts furnish an ever increasing market for coke and the demand for the article is such as to sustain good prices with very profitable returns for the producer.

The Coal Trade Journal contains the following statement with reference to coke and the output for the fiscal year ending June 30, 1900:

"Never before in the history of the coke trade has there been experienced such a demand as prevailed during the past year. Every industrial establishment has been busy and coke has been in so much demand, that all the ovens are now burning and new ones projected in all parts of the country. The principal districts—the Connells-ville—has 18,600 ovens in full blast; and the product is 200,000 tons a week. Prices advanced fully fifty per cent. during the past year and production was about forty per cent. greater. In the closing days of the year reports placed the price of foundry coke on scattered orders as high as \$3.50 a ton, and this figure was exceeded in the earlier days of 1900, but a careful estimate places the average price of the Connellsville region output of 1899 at \$2 per ton, and there were shipped out of that coke region during the past year 523,203 cars of coke containing 10,129,764 tons, which, at the average price estimated above, would yield a gross revenue of \$20,259,528 on board of cars at the ovens. The Connellsville coke industry furnishes directly employment to 20,000 men, and indirectly to several hundred thousand. Ten millions of tons of coke per annum means the consumption of fifteen millions of tons of coal, but five million tons of this amount is thrown into the atmosphere in the shape of volatile matter, which in turn contains many bi-products, such as ammonia, tar, gas, heavy and light oils, etc. All of the six leading coke producing states have steadily increased their production. In 1898 Pennsylvania's production increased 1,748,378 short tons, or 19.5 per cent. West Virginia increased 452,405 short tons, or 30.7 per cent. Alabama increased 220,003 tons, or about 20 per cent. Virginia increased 177,094 tons, or 50 per cent. Colorado 132,155 tons, or 38 per cent, while Tennessee's increase was only 7 per cent, or 25,776 tons."

To show our readers how rapid has been the growth in the manufacture of coke in the United States during the last 10 years as shown in the figures prepared by E. W. Parker, statistician of the United States geological survey we quote: "In the year 1890, there were 30,050 coke ovens built, using 12,945,350 tons of coal, producing 8,540,030 tons of coke, which was sold on board of cars for \$1.46 per ton. While figures show for the year 1900, 50,000 coke ovens, using 26,500,000 tons of coal, producing about 18,000,000 tons of coke, and selling on board of cars at the ovens for \$2 per ton."

Now, with the success of this new process we expect to see the name of grand old Missouri among those of the coke producing states of the nation. Experiments have found the way out of many difficulties that were at first presented, and the result of this new process will be a revelation to the coal men of the State, one which will cause all to feel that the value of their holdings will be almost double. We may look for an early and rapid increase in the price of coal lands.

COAL PRODUCTION OF THE UNITED STATES.

The United States in 1899, took first position among the coal producing countries of the world, thus supplanting Great Britain, which country has held the front rank since coal statistics have been recorded.

The rapidity with which the production of coal has increased may be appreciated when we consider the present volume of that production and reflect in how recent a time the production formed but a very small fraction of that quantity. The record made in 1899 is an important one, for not only did the production exceed all previous records, but placed the United States at the head of the coal producing countries of the world with an output of 253,739,992 tons of coal, valued at \$256,077,434. The production in each of the last three years have been the largest up to that time. In 1897 the output of coal reached for the first time a total of 200,000,000 tons. The product of 1898 was 219,974,667 short tons, an increase of nearly 10 per cent. over 1897, and the statistics for 1899 shows an increase of 33,765,325 short tons, or about 15 per cent. over 1898. In 1896 the total coal product of the world was 664,000,000 net tons, and until as late a period as 1878 the world's product had never been half so great, being then only about 202,000,000 tons, and not until 1868 had the world's production been as much as a third as large as it is at present. In 1864 the world's product was only 174,000,000 tons, or less than 29 per cent. of that of 1876. Statistics

relative abundance or scarcity of coal, therefore, is the truest index of a country's position among its industrial rivals, and there is no doubt that in the near future this country will be called upon to supply a large quantity of the coal needed by foreign industrial countries, which, until recently, have been drawing upon the British output. In fact, exportations of coal from the United States in the 10 months ended with April, 1900, were nearly 50 per cent. larger than those of the same months of the preceding fiscal year and 80 per cent. larger than those of the corresponding months of 1898.

COAL THE GREAT FREIGHT FOR RAILROADS.

A publication called the Coal Trade, which is published by Mr. Frederick, E. Saward, of New York, and which is a compendium of valuable information relative to coal production, prices and transportation, has the following information in regard to coal as freight for railroads in its columns for the year 1900, which will be news as well as very interesting to the readers of this report:

"The heaviest tonnage of any single product carried by the United States railroads is coal. In so-called coalers it comprises 40 to 50 per cent. of the total tonnage. Even the Granger roads carry a larger percentage of coal than of wheat. The larger southern roads, like the Southern and Louisville & Nashville, derive their greatest revenues from what they classify as products of mines, including chiefly coal and coke. By developing these resources they have gradually forced the old Gulf cotton ports into modern coal ports.

The Atchison was once dependent on the corn crop, but during the last fiscal year it hauled 31.13 per cent. of products of mines, and of this fully three-fourths was bituminous coal. Wheat and corn amounted to only 14.59 per cent. New York Central carries nearly twice as much coal and coke as grain, and about three times as much as of general merchandise. The total tonnage of the New York Central last year was 25,356,000 tons. Of this coal and coke comprised 6,654,954 tons, grain 3,805,000 tons, general merchandise 2,490,000 tons and lumber 1,900,000 tons. Another road traversing New York—the Erie—carried 40 per cent. coal, 4 per cent. merchandise and a like amount of grain and 7 per cent. of iron. The remainder of the tonnage was distributed among 35 different articles, an unusual diversification of tonnage.

Only one of the so-called "Granger roads carried more wheat than coal last year; that is the Great Northern, which has a wheat percentage of 42½ against 4 per cent. for coal. Lumber tonnage reaches 11

per cent. and minerals 5 per cent. Northern Pacific carried 20.61 per cent. of coal and coke compared with 20.15 per cent. of wheat, 14 per cent. of lumber and 11½ per cent. of forest products. The coal percentage of the St. Paul is 11, wheat 10, lumber 10 and other forest products which includes shingles, lathes and the like about 10. Two important southwestern roads—St. Louis & Santa Fe and M., K. & T.—carry more coal than any other articles. The products of mines with the St. L. & S. F. is slightly less than 40 per cent., and with the M., K. & T. over 33 per cent. The Reading railroad is known as a great coaler, and that it deserves the title is shown by the fact that of gross revenues of \$22,456,000 during the last fiscal year, coal furnished \$10,085,000 and general merchandise \$7,824,000. Norfolk & Western runs through the rich bituminous coal field of West Virginia, and showed a total of 8,837,739 tons; no less than 6,200,000 represented by products of mines.

MINERS' OIL.

A large number of complaints have been received at our office during the past year concerning the grade of oil purchased and used by our miners. At best the oils in use are of a very inferior quality and no one detects this fact more readily than the Inspector while making his rounds through a mine. The miner himself purchasing and using the oil makes complaint of its inferiority, while in fact the remedy is almost entirely in his own hands. On a recent visit to the mines located between Moberly and Huntsville a grade of oil which appeared to be very generally used was especially noticeable because of the unusual amount of smoke and fumes thrown off by the miners' lamps. We noticed that even after the wick was lowered in the lamp until the flame was not a half inch long, that there would be black top attached to it from five to six inches in length. Where four or more lights were found burning in any one place the fumes and smoke would so fill the place in ten minutes that it was impossible to see one another and to breath in that atmosphere was not only extremely unpleasant, but positively injurious to health. Questioning the miners relative to the prices they paid for the oil, some said 40 cents per gallon, while others said 50 cents. When asked if a better grade could not be had, they answered yes, but they would have to pay 80 cents per gallon for it. Now, these same miners were buying the cheaper grades of oil, claiming their purposes were served well by it and at same time were kicking and complaining about the air in the mine, *while at that very monment* the full amount of air required was

being furnished them as the law required. They did not stop to think that the oil they were burning was filling the mine with smoke and fumes and the positive poison generated thereby was absorbed by the air which they breathed. The miners at the Murlin Coal Co. at Fleming, Ray county, made request of the company that it furnish them a better grade of oil to use in the mines. The company was more than willing to comply and promptly furnished the better grade. The miners at that mine are now using the better grade of oil with great satisfaction, and we wish every miner in every mine in the State would emulate the example set by the above mentioned.

At the Glen Oak mine, operated by the Lexington Coal Co., we noticed two grades of oil being used in the same mine. Upon inquiry learned that the company had purchased some oil for the use of the miners that it sold at 60 cents per gallon and that this oil stood the test required by law, and was giving satisfaction. On visiting the miners at their working places in this mine, we made it our business to notice the lamp of every miner purchasing his oil from the company; in every instance the lamp burned bright and clear without fumes and very little smoke; the air current was fresh and the surroundings good; but on visiting other parts of the mine, we came in contact with those who were burning the inferior oil; the conditions were exactly reversed; fumes and smoke were so dense that we could hardly distinguish anything two feet distant. Questioning the miners concerning the price they paid for their oil, we learned that they paid 30 cents per gallon. The Inspector felt called upon to speak very plainly to these miners, which he did; he also instructed the superintendent of the mine to insist on every man in the mine using the better grade of oil.

The suggestions made by us in our last report, to the effect that all mine owners keep the best grade of oil for the use of the miner, and as an inducement sell it at a small margin of profit, requiring every man using oil to purchase it of them appears to have met with but little consideration or attention. We are surprised to find after a careful examination a deterioration in the quality of oil used this past year instead of a betterment, to say nothing of the numerous complaints entered by the miners concerning the poor oil used. The miners have been made acquainted with the fact that the Inspector is powerless in his efforts to enforce the law relative to the grade of oil, unless they as a body stand by him and sustain him; but unfortunately the miners, the only parties benefitted by the law, are the chief violators of the law. It is manifestly not the wish of the operators that a poor quality of oil be used in the mines, as it renders the chances of keep-

ing up and maintaining a good supply of fresh air in the mine just that much more difficult and certainly must add to the expense of that account. The miners have no more reason for the use of a cheap grade of oil than the operator, for it is questionable in the long run if the cheap grade is the cheapest and so far as the health and comfort of the miner is concerned there is no question that the cheap oil is very injurious, and whatever, if anything, is saved is more than counter-balanced by its evil effects.

This is a matter for the miners themselves to regulate; their indifference ties the Inspector's hand and makes useless his authority and effort. Whenever the miners, however, indicate a desire to have the law enforced and prove it by their acts there will be no lack of support from the Mine Inspector.

MINERS' EARNINGS.

Within the past year much has been said and written concerning miners' earnings and many false impressions have arisen as a result. In order that our State may appear before the public in this matter in accordance with the facts, we addressed a letter to our larger operators as follows:

Dear Sir—The unfavorable comments upon the statements made by several of our mining states relative to the earnings of miners, prompts me to make an effort to do my State and its mining industries exact justice in this matter. To this end I invoke the aid of the representative coal companies of the mining counties to prepare me a statement to be used in my forthcoming report which will cover the question of miners' wages; the same to be free from bias, impartial and unvarnished. I have, therefore, to request that your company furnish me the following information:

The names of five miners who have earned the largest sums and also the names of five miners who have earned the least sum of all those miners who have worked each day that the mine was worked during the year, with the amount of coal mined and the amount earned placed opposite each name. Would also request remarks on the cause of any loss of time, together with such other information as you may think proper or pertinent to the subject.

Yours truly,

CHAS. EVANS,

State Mine Inspector.

In compliance with the above request, the leading coal companies doing 45 per cent. of the entire coal mining business of the State

have responded. The original tables and remarks as they were received from the respective companies will be found below. Foot notes by the Inspector have been added as his actual knowledge of the situation justified him in making in the effort to explain as fully as possible. We have endeavored in the above to so place the matter before the public that any one calling in question the accuracy of any statement will have the opportunity to make inquiry through the miner or miners as their names are given, together with the coal mined, yardage, cost of powder, etc.:

ADAIR COUNTY.

Names of five miners working for Rombauer Coal Co., showing the largest earnings July 1, 1899, to July 1, 1900.

Name of miner.	Tons of coal mined.	Earnings.	No. of days worked by the		
			Mine	Miner.	Days lost by miner.
Ryman Hoffman.....	855	\$763 14	253	240	13
Rd. Hoffman.....	853	761 34	253	239	14
Andy Steele.....	1,103	898 94	253	250	3
Jim Giachello.....	860	679 25	253	221	32
A. Geist.....	854	674 09	253	245	8
	4,525	3,776 76			

Names of five miners showing smaller earnings.

Jim Ellos.....	1,092	\$657 61	253	241	12
F. Legrand.....	926	567 55	253	216	37
Jerry Harris.....	823	645 76	253	225	28
Geo. Rouchette.....	1,034	614 44	253	243	10
W. J. Jones.....	830	503 06	253	195	58
	4,705	2,988 42			

NOTE—The above statement made by the Rombauer Coal Co., of Adair county, in the matter of earnings makes a good showing. There is to be considered, however, the actual price paid for mining at 60c per ton and the yardage and other dead work added. Also the cost of powder to the miner, which averaged \$117.00 for each 1,000 tons mined and the cost of oils, blacksmithing and wear and tear of tools, all of which are to be deducted from total earnings.

INSPECTOR.

ANNUAL REPORT OF THE

BARTON COUNTY

Statement of the mine workings for Wear Coal Company, showing the net profit earnings July 1, 1910, to July 1, 1911.

Name of mine	Date of coal mined	Earnings	No. of days worked by the		
			Mine	Wagon	Days lost by mine
Wear Coal Company	2,400	\$240.00	240	240	240
Wear Coal Company	2,400	\$240.00	240	240	240
Wear Coal Company	2,400	\$240.00	240	240	240
Wear Coal Company	2,400	\$240.00	240	240	240
Wear Coal Company	2,400	\$240.00	240	240	240
	12,000	\$1,200.00	1,200	1,200	1,200

Statement of the mine workings during the year ending July 1, 1911.

Wear Coal Company	2,400	\$240.00	240	240	240
Wear Coal Company	2,400	\$240.00	240	240	240
Wear Coal Company	2,400	\$240.00	240	240	240
Wear Coal Company	2,400	\$240.00	240	240	240
Wear Coal Company	2,400	\$240.00	240	240	240
	12,000	\$1,200.00	1,200	1,200	1,200

NOTE: The statement of the Wear Coal Co., of Barton county, embraces yardage and other hand work in the total earnings given; the price of mining was 60c per ton. Cost of powder which averaged the mine \$115.00 per 1,000 tons of coal mined, together with the cost of oil, blacksmithing and wear and tear of tools, are all to be deducted from gross earnings of the mine. The company further states relative to the number of days worked by mine and lost by him, "we can give you no accurate answer for the reason that they go into the mine and work on days that we are not hoisting and again work days that they do not send up any coal."

INSPECTOR.

.BATES COUNTY.

Names of five miners working for Rich Hill Coal and Mining Company, showing the largest earnings July 1, 1899, to July 1, 1900.

Name of miner.	Tons of coal mined.	Earnings.	No. of days worked by the		
			Mine.	Miner.	Days lost by miner.
John Trivett, Sr.....	2,529.05	\$1,284 50	188½	182½	6
John Trivett, Jr.....					
M. H. Sinclair, Sr.....	2,387.70	1,193 65	188½	182½	6
M. H. Sinclair, Jr.....					
F. Lefever.....	1,251.10	625 55	188½	184½	4
	6,167.85	3,083 90			

Names of five miners showing smallest earnings.

P. Gallagher.....	801.05	\$400 50	188½	156½	32
P. Nelson.....	804.45	402 25	188½	160½	28
T. Hilton.....	405.90	202 95	188½	143½	45
D. Vena.....	801.80	400 90	188½	171½	17
S. Friday.....	661.35	330 20	188½	156½	32
	3,474.55	1,736 80			

NOTE—In the statement of the Rich Hill Coal and Mining Co., no yardage or dead work is included in the earnings; but is a showing of earnings from mining only.

The powder at this mine averaged a cost to the miner of \$95.00 for each 1,000 tons of coal mined; oil, blacksmithing and wear and tear of tools are to be deducted from the earnings.

INSPECTOR.

LAFAYETTE COUNTY.

Names of five miners working for Lexington Coal Mining Company, at Lexington, Mo., showing the largest earnings for one year (July 1, 1899, to June 30, 1900).

Name of miner.	Tons produced.	Amounts received.	No. days worked.	No. days lost.	Total No. days mine worked.	Where.
James Canning.....	755.02	\$715 85	216	3	219	Glen Oak mine.
Butler Talbott.....	737.89	697 71	209	10	219	" "
Aug. Mayer.....	733.06	689 11	209	10	219	" "
John Glisch.....	707.76	670 12	204	15	219	" "
John M. Lierman.....	712.63	672 69	213	6	219	" "

(Each without a helper.)

Names of five miners working for Lexington Coal Mining Company, at Lexington, Mo., showing the lowest earnings for one year (July 1, 1899, to June 30, 1900).

Name of miner.	Tons produced.	Amounts received.	No. days worked.	No. days lost.	Total No. days mine worked.	Where.
Abram Lindsay.....	235.25	\$219 90	195	19	214	Seawell mine.
Lewis E. Williams.....	345.05	330 46	189	25	214	" "
Walter Colley.....	385.67	365 90	193	27	220	McDowell Shaft mine.
Thos. Williams.....	334.47	317 27	205	15	220	" "
Elijah Lucas.....	385.64	361 33	200	20	220	" "

(Each without a helper.)

NOTE—No cause assigned for time lost. Presume, however, that it was on account of sickness or private business, possibly both.

Furnished for State Mine Inspector, Chas. Evans, in compliance with his request for same, under date of July 23, 1900.

Lexington, Mo., July 23, 1900.

B. T. WILEY, Superintendent.

NOTE—There is no powder used at either of the above mines and oil is the only expense to be deducted besides the general wear of tools which is very light at these mines.

INSPECTOR.

first five named were in the mine nearly every working day of year, making coal ready even when they couldn't get it out. There is no powder used in this mine, and the only expense to deduct from the miners' wages is oil and ware and tear of tools, sharpening possibly included.

INSPECTOR.

MACON COUNTY.

Names of five miners working for Northwestern Coal Company showing the largest earnings July 1, 1899, to July 1, 1900.

Name of miner.	Tons of coal mined.	Earnings.	No. of days worked by the		
			Mine.	Miner.	Days lost by miner.
E. J. Hill.....	764.00	\$619 04	281	270	11
Thos. Bryden.....	784.21	603 23	281	256	25
D. H. Wright.....	872.32	503 03	281	263	18
Jno. Scott.....	785.73	440 10	281	265	16
J. H. Moore.....	734.31	453 17	281	250	22

Names of five miners showing smallest earnings.

Wm. Lyng.....	702.06	\$415 12	281	271	10
N. Sylvester.....	729.46	412 68	281	250	31
G. W. Hubbard.....	605.23	353 79	281	254	27
J. A. Daniels.....	613.76	385 93	281	232	49
Jake Moore.....	780.43	446 28	281	264	17

NOTE—The Northwestern Coal Co., of Macon county, in its statement does not show any dead work in connection with the tons mined; but as the average price for mining is 55c per ton it is quite clear that other work is included. There must be reckoned against the earnings of the miner, the cost of oil, blacksmithing, ware and tear of tools and also an average of \$76.77 for each 1,000 tons of coal mined by the miner.

INSPECTOR.

Names of five miners working for Watson Coal Company, showing the largest earnings July 1, 1899, to July 1, 1900.

Name of miner.	Tons of coal mined.	Earnings.	No. of days worked by the		
			Mine.	Miner.	Days lost by miner.
J. L. Mark.....	1,147.93	\$619 30	315	268	47
Geo. Williams.....	1,078.27	583 10	315	294	21
John Novaria.....	916.88	500 15	315	267	48
Idress Roberts.....	850.24	460 90	315	286	29
Ben T. Thomas.....	850.00	460 00	315	287	28

Names of five miners showing smallest earnings.

Name of miner.	Tons of coal mined.	Earnings.	No. of days worked by the		
			Mine.	Miner.	Days lost by miner.
T. J. Evans.....	786.57	\$427 30	315	292	23
Wm. Richards.....	785.00	424 10	315	277	38
H. Jones.....	780.00	421 90	315	271	44
J. T. Mitchell.....	739.00	399 35	315	265	50
W. H. Cross.....	554.00	294 90	315	258	57

NOTE—The Watson Coal Co., of Macon county, in its statement furnishes the earnings of miners from coal mining only, there being no dead work considered or embraced in it. There is to be deducted from the gross earnings of the miners at this mine the cost of powder, which averages \$74.00 for each 1,000 tons, the cost of oil, smithing and ware and tear of tools.

INSPECTOR.

PUTNAM COUNTY.

Names of five miners working for Mendota Coal Company, showing the largest earnings July 1, 1899, to July 1, 1900.

Name of miner.	Tons of coal mined.	Earnings.	Number of days worked by the		
			Mine.	Miner.	Days lost by miner.
Robt. Appleby.....	Day work, 668.055	\$18 62 484 63	235	182	53
Mike Cerovic.....	Yardage, 728.590	63 72 533 08			
J. W. Olark.....	Yardage, 390.625	227 09 283 78	235	201	34
Wm. Rogers.....	Yardage, 529.830	153 94 381 23			
Wm. Wilson.....	Yardage, 423.150	285 78 308 20	235	197	38

Names of five miners showing smallest earnings.

Robt. Alfrey.....	324.910	\$237 88	235	155	80
Harvey Ooon.....	309.05	226 10	235	159	76
Geo. Fisher.....	356.9	260 15	235	189	46
Boon Healvillin.....	Yardage, 378.065	20 84 275 74	235	184	51
E. E. Sparks.....	238.685	174 13	235	139	96

NOTE—There is no powder used at this mine, and only the expense for oil is to be deducted from the earnings.

INSPECTOR.

RANDOLPH COUNTY.

Elliott Coal Company.

Elliott, Mo., July 30th, 1900.

Hon. Chas. Evans, State Mine Inspector, Jefferson City, Mo.:

Dear Sir: In response to your request of 23rd inst., I take pleasure in sending you the enclosed statement, which I trust will meet with your requirements. Selecting these names I have endeavored to be impartial and get fair averages. Upon first sight it might seem an injustice to the men to publish the statement, but when the number of days worked are taken into consideration the actual per diem does not differ materially. The statement simply shows who loses the most time when the mine is in actual operation. The first group having lost 50 days while the latter lost 122.

The per diem of the miners is nearly uniform. This is so because of the fact that they have what is termed a "turn" by which they all load about the same amount of coal—the poor and inexperienced being put on an equality with the old and experienced miner.

It is sometimes necessary to hold the good miner back in order to bring up the less experienced ones, especially is this so when it is known that they sometimes have among themselves a limit, whereby only a certain number of cars of coal can be loaded in a day and when that number is loaded they quit. These are rules the miners make up among themselves. The actual earnings as shown in this statement is no criterion as to what a good miner could make here under average circumstances and being allowed to have "free click."

It would be useless to explain these things to you as you are well aware of all of these circumstances, and all of the coal fraternity is, for that matter, so trusting this statement will prove to be what you want, I am yours very truly,

J. C. FLEMING, Sec'y.

STATEMENT FROM NO. 3 ELLIOTT COAL CO., ELLIOTT, MO.
HIGHER.

1899.	J. W. Hall. A.				J. M. Shaefer. A.				Hec McGinniss. A.				J. W. Lloyd. A.				R. D. Jones. A.			
	Pounds	Amount.....	Mine run....	Men worked.	Pounds	Amount.....	Mine.....	Man.....	Pounds	Amount.....	Mine.....	Man.....	Pounds	Amount.....	Mine.....	Man.....	Pounds	Amount.....	Mine.....	Man.....
July.....	128,000	\$50 25	19	16	123,000	\$48 70	19	18	161,500	\$32 66	19	19	123,000	\$48 66	19	19	112,000	\$43 15	19	17
August.....	* 28,000	Br 11 56	7½	5	32,500	13 75	7½	6½	41,300	17 27	7½	7	34,400	14 51	7½	7½	35,900	15 35	7½	7
September..	97,700	39 09	12	12	64,800	27 17	12	11	66,000	27 90	12	10	90,000	38 12	12	12	90,000	38 12	12	12
October.....	150,000	61 08	23	23	*Poll 128,000	52 48	23	23	137,000	56 04	23	21	133,000	54 90	23	23	138,000	58 20	23	23
November..	153,000	63 41	23	23	130,000	55 24	23	23	129,000	53 60	23	21	148,000	61 40	23	23	154,000	63 48	23	23
December..	101,000	42 64	18	17	81,300	35 52	18	14	96,300	38 52	18	17	94,900	37 96	18	17	102,400	42 96	18	18
1900.																				
January.....	64,800	27 42	13	12	46,400	20 56	13	9	77,500	31 00	13	13	75,300	32 12	13	13	76,900	30 76	13	13
February....	71,900	30 26	12	12	52,800	22 12	12	12	*58,700	23 48	12	10	62,100	24 84	12	11	74,200	30 68	12	12
March.....	108,100	45 24	18	18	98,800	40 52	18	18	108,600	45 69	18	17	118,800	49 77	18	18	110,400	46 18	18	18
April.....	*69,400	28 78	10½	5½	53,900	21 56	10½	10	53,900	21 56	10½	7½	59,400	23 70	10½	10	49,200	24 68	10½	9
May.....	127,400	55 21	21	20	125,900	50 36	21	20	45,500	59 20	21	21	152,700	62 08	21	21	137,400	57 96	21	21
June.....	* 88,000	39 20	16	15	83,100	36 24	16	12	* 92,500	41 00	16	16	84,300	35 72	16	16	95,700	38 28	16	16
Totals....	1,188,300	494 12	193	178½	1,031,900	431 53	193	170½	1,167,800	467 92	193	179½	1,175,900	483 84	193	190½	1,176,100	489 76	193	190
Days lost				14%	10%				13%				2%				3			

* Substituted account not fair average. A A A higher set of 5. B B B lower set of 5. C lost time attending convention of miners.
Of the 365 days in the year, 52 are deducted for Sundays, 5 for holidays and 3 on account of repairs, thus leaving the number of days "possible" 306.
The mine was in operation about 193 days and all should have worked that number of days. The number of days short were lost through causes of their own.
The 112 days enforced idleness were self-inflicted on account of sympathetic strike and consequent loss of trade when strike was finally declared off.

STATEMENT FROM NO. 3 ELLIOTT COAL CO., ELLIOTT, MO.—Continued.

LOWER.

	John L. Lewis. B.				Dave Robston B.				Roy West. B.				Theo. Sutliff. B.				Jas. Magruder. B.			
	Pounds	Amount	Mine	Man	Pounds	Amount	Mine	Man	Pounds	Amount	Mine	Man	Pounds	Amount	Mine	Man	Pounds	Amount	Mine	Man
1899.																				
July.....	41,000	\$17 52	19	8	55,000	\$21 47	19	9	81,000	\$30 33	19	19	68,000	\$26 97	19	18	42,000	\$15 82	19	8
August.....	17,200	7 88	7½	5	Larreau \$23,200	10 26	7½	7	Magruder \$26,400	10 56	7½	6	20,500	8 20	7½	6	20,400	10 56	7½	7
September.....	68,000	28 20	12	12	McMillan \$13,000	5 36	12	3	39,000	17 65	12	8	66,000	26 64	12	12	86,000	35 72	12	12
October.....	85,000	34 12	23	18	Brooks \$57,600	27 04	23	19	84,000	35 36	23	23	103,000	41 40	23	23	130,000	50 04	23	22
November.....	115,000	46 28	23	20	Adkins \$2,000	36 88	23	19	105,000	44 20	23	23	105,000	42 04	23	21	117,000	49 50	23	22
December.....	77,000	32 80	18	15	82,100	32 84	18	15	64,600	25 84	18	16	89,700	35 88	18	17	103,500	45 90	18	17
1900.																				
January.....	50,800	28 32	13	12	34,300	13 72	13	10	33,100	13 24	13	9	61,400	24 56	13	13	65,600	26 24	13	11
February.....	45,700	19 78	12	12	51,800	20 72	12	11	43,500	19 23	12	10	50,300	20 12	12	12	46,200	19 28	12	9
March.....	66,600	30 80	18	15	96,700	40 08	18	18	85,700	35 78	18	18	88,100	36 74	18	18	100,000	42 00	18	18
April.....	22,500	11 50	10½	6	54,900	23 46	10½	10	38,300	15 32	10½	7½	46,900	18 70	10½	10½	46,000	19 40	10½	8½
May.....	98,100	42 24	21	21	82,800	38 12	21	18	82,300	32 92	21	21	103,300	42 82	21	21	113,100	47 24	21	21
June.....	49,400	25 50	16	14	76,800	35 59	16	16	66,500	35 10	16	14	46,100	22 44	16	12	77,500	32 00	16	16
Total.....	736,300	325 03	193	158	730,100	306 14	193	153	749,400	319 53	193	175½	848,300	346 57	193	183½	945,300	373 70	193	171½
Days lost		35			40				17½				9½				21½			

* Substituted account not fair average. A A A A higher set of 5. B B B B lower set of 5. C Lost time attending convention of miners. Of the 35 days in the year, 52 are deducted for sundries, 5 for holidays, 3 on account of repairs, thus leaving the number of days "possible" 305. The mine was in operation about 193 days and all should have worked that number of days. The number of days short were lost through causes of their own. The 112 days enforced idleness were self-inflicted on account of sympathetic strike and consequent loss of trade when strike was finally declared off.

RAY COUNTY.

Mercantile Coal and Mining Company.

Richmond, Mo., August 1st, 1906.

To Chas. Evans, Esq., Inspector of Mines, Jefferson City, Mo.:

Dear Sir: Enclosed find statements of miners' wages as requested in your favor of July 23rd, 1900. Hoping it may meet with our desire, I remain yours truly,

F. R. ATWILL, Supt.

Statement of five men working for Mercantile Coal and Mining Co., earning highest wages during year ending June 30, 1899.

Name.	Tonage.	Tons.	Days.	Amount made.	Average per day.
Galbraith.....	1,466,000	733	251	\$696 35	\$2 77
Kerigan.....	1,242,000	621	235	589 95	2 51
Campbell.....	1,082,000	541	224	513 95	2 29
Smith.....	1,060,000	530	224	503 50	2 24
m. Blair.....	1,146,000	573	247	544 35	2 20
Totals.....	5,996,000	2,998	1,181	2,848 10	12 01

Average per man for year, \$2.41

F. R. ATWELL, Superintendent.

Statement of five men working for Mercantile Coal and Mining Co., earning lowest wages during year ending June 30, 1899.

s. McDonald.....	786,400	393	240	\$373 35	\$1 55
Campbell.....	708,680	354	220	336 30	1 52
ns. Smith.....	764,400	282	240	362 90	1 51
Heckre.....	752,250	376	236	357 20	1 51
Graham.....	754,240	377	238	358 15	1 50
Totals.....	3,764,000	1,882	1,174	1,787 90	7 69

Average per man for year, \$1.53.

NOTE—There is no other expense than oil to deduct from the above. The mine was worked very steady throughout the year.

INSPECTOR.

RAY COUNTY.

Names of five miners working for Richmond and Camden Coal Company, showing the largest earnings July 1, 1899, to July 1, 1900.

Name of miner.	Tons of coal mined.	Earnings.	No. of days worked by the		
			Mine.	Miner.	Days lost by miner.
John Richardson.....	357	\$336 50	170	155½	14¼
Ed. Pyles.....	361	339 75	170	166½	3½
Jno. Dickson.....	351	330 50	170	151½	18½
Sam Yokum.....	361	339 60	170	159	11
O. C. Hurt.....	408	382 95	170	169½	¾

Names of five miners working for Richmond and Camden Coal Company, showing smallest earnings July 1, 1899, to July 1, 1900.

Dan Clay.....	315	\$296 60	170	155	15
West Post.....	265	250 80	170	129½	40¼
Pat Walsh.....	279	261 20	170	139	31
Frank Yokum.....	282	265 25	170	158	12
R. Mason.....	366	345 25	170	170	.....

NOTE—There is no powder used at this mine, and oil is the only expense.—INSPECTOR.

RAY COUNTY.

Fleming, Mo., Aug. 2, 1900.

Mr. Chas. Evans, State Mine Inspector, Jefferson City, Mo.:

Dear Sir: The following shows the five men earning the largest amount each and the five men earning the smallest amount each at our mine at this place during the six months ending June 30, 1900:

Names.	Tons.	Amt. earned.	No. days worked.
Wm. Wyatt.....	248.14	\$241 79	98¼
Clyde Williams.....	277.13	263 27	96¼
Jas. Craven.....	310.11	294 60	102¼
Jas. C. Taylor.....	265.95	252 65	90¼
David Wyatt.....	318.02	302 12	100
Perry Houx.....	172.35	167 13	96¼
Lee Garrett.....	155.51	147 73	88¼
Emory Foster.....	139.00	132 05	87¼
G. O. Cooper.....	132.42	125 80	88
John Adams.....	128.61	122 18	86¼

Actual working time of mine under above period was $106\frac{1}{2}$ days, based on eight hours to the day. I give you the figures as you requested them, although it should be considered that in making up this statement I have counted as a day's work, all the days the miner was in the mine that the mine was in operation a full day. This would give a false result in case, for instance, the mine was in operation a full day and one of the miners named above for some reason or other only loaded one box, and then came out, the actual time he worked being only one or two hours, but which is counted in above as eight hours. Would also state that the actual time worked on "full day" is about seven hours at this place, instead of eight hours. Yours truly,

MURLIN COAL CO.,
By H. L. McSHERON.

NOTE—There is no other expense than oil to be deducted from the above earnings as no powder is used at the mine and very little wear and tear of tools.

INSPECTOR.

VERNON COUNTY.

Central Coal and Coke Company.

Kansas City, Mo., Aug. 24, 1900.

Hon. Chas. Evans, State Mine Inspector, Jefferson City, Mo.:

Dear Sir: Enclosed we hand you report as covered by your request of August 15th. We made this report to cover the time men were employed on tonnage basis at our Panama shaft. We have also shown day work and yardage earned by the men separate from the earnings for coal mined during same period, which we trust will be satisfactory. Kindly acknowledge receipt of report, and oblige, yours truly,

J. C. SHERWOOD, Auditor.

Receipt acknowledged August 20.

Names of five miners working for Central Coal & Coke Co. showing the largest earnings Sept. 1, 1899, to July 1, 1900.

Name of miner.	Tons of coal mined.	Coal earnings.....	Day work and yardage earnings.....	Total earnings.....	No. of days worked by the		Days lost by miner.....
					Mine.	Miner.	
Jake Karbonick.	1,050	\$525 00	\$499 15	\$1,024 15	170	165	5
Charles Webb.	1,340	670 00	155 00	825 00	170	150	20
George Ellis.	1,380	690 00	288 50	978 50	170	160	10
Alex. Frost.	1,220	610 00	280 45	890 45	170	158	12
F. M. Sherrock.	1,280	640 00	210 25	850 25	170	150	20

Names of five miners showing smallest earnings.

Name of miner.	Tons of coal mined.....	Coal earnings.....	Day work and yardage, earnings.....	Total earnings.....	No. of days worked by the		Days lost by miner.....
					Mine.	Miner.	
Alf. Brown.....	800	\$400 00	\$20 50	\$420 50	170	158	12
Taylor Hall.....	650	325 00	93 50	418 50	170	160	10
Hy. Davis.....	780	390 00	.....	390 00	170	150	20
Hy. Kerby.....	850	425 00	.....	425 00	170	162	8
Ed. Addison.....	700	350 00	.....	350 00	170	150	20

Mine started on tonnage basis Sept. 1, 1899, and report is made covering period from that date.

NOTE—Central Coal & Coke Co., Vernon county. The statement of this company shows extraordinary earnings for its miners compared with all other companies. The solution to this, we think, lies in the fact that while the mine was operated only 170 days and the miner worked 165 of those days, yet the same miners may have been in the mine preparing their coal for delivery when the mine proper was not hoisting coal; this is very common in many mines, and while apparently there were only 170 days in which the miner had opportunity to send his coal to the surface, yet in mining it and getting it ready to be hoisted he may have spent 270 or 300 days in the mine. The powder which cost the miner on an average of \$84.00 for each 1,000 tons mined, the cost of oil, blacksmithing and wear and tear of tools have each to be deducted from gross earnings.

INSPECTOR.

STRIKES.

Aside from those strikes in existence in several counties a part of last and continued through this year, and which are generally known as sympathetic strikes, though preferably termed by the miners as a suspension of work, a detailed account of which will be found in the record herein of strikes by counties, we have had comparatively few strikes during the year.

As much as strikes are to be deplored, for very often they are ill-advised, frequently entered into under conditions which preclude the possibility of success, resulting in suffering and want not only to those immediately concerned, but extending to other interests correlated, and to still others more remotely connected. But baneful as strikes sometimes are, yet they are a necessary part of our present industrial system, and act as safety valves to the pent up wrongs that must find vent before grievances are adjusted. Strikes offer the lines of least resistance and answer the purpose in the labor problem that the ballot does in the political antagonism of principles represented by opposing parties; the necessity and right of the strike to be used by organized labor is parallel to the right of revolution in govern-

ment. Some writers on the labor problem have the assurance to state that the history of strikes will show that the working man is invariably the loser no matter whether he wins or loses in the contest, and that labor unions lower instead of raising wages.

I take exceptions to both assertions, regarding each as devoid of either truth or reason, and in proof, point to the many fresh experiences at the command of hundreds of workingmen as evidence diametrically opposed to such views. To my mind strikes are the only resort in aggravated cases, and the only safeguards within the reach of the laboring man, as arbitration and all the mild and minor methods proposed appear to be distasteful to the employer. The growing tendency of all corporations to utterly ignore labor organizations or to submit to arbitration, smacks largely of a disposition to regard all laborers as servants or slaves, and not as sovereigns; that to recognize labor as the laboring man has so often proposed, would be dignifying labor too much, and to elevate the employe too near the lofty plain occupied by the employer.

In the larger concerns it is too frequently the case that the management is committed to some cold blooded wretch who has made his reputation by reason of his ability to keep down expenses; but does the stockholders in this concern know at what fearful cost to poor humanity this reputation has been made? We prefer not to think so, but our charity is lost on this character of managers. They are so absorbed in making reputation and securing an increase of salary that economy has become the paramount issue with him; if he secures it by causing want and destitution to his many miners, their wives and children, what of it? He, in his mad pursuit, has lost sight of the fact that his employes have ambition, feeling bodies and souls; they are regarded as a means to an end, with him it is purely commercial—dollars and cents.

Management of the above type does not reason with employes; hence it is when trade slackens or the least depression is felt in business, that the claim is immediately made, that wages cannot be maintained; instead of attempting to adjust the situation to the changed conditions, by that more equitable way of reducing the number of hours to be worked each day and thus curtail production without reducing wages. With the very slightest excuse, how eager we have noticed some operators to cause a reduction in wages, yet when the conditions were reversed how slow to restore them. There may be instances where operators have voluntarily advanced wages, but just now we fail to call to mind a single instance of the kind. Unquestionably strikes have following in their wake great loss and much mis

but as no class of men are more experienced than the miners concerning the severe trials attending a prolonged strike, we are bound to credit them with sincerity of purpose in making their demands when they carry it so far as to order a strike in the face of its well known horrors, they must also regard it as their only recourse and salvation. It is also without a doubt a successful method in securing justice when not abused.

Our labor organizations are but the natural growth of the conditions existing in our coal trade, and are absolutely necessary to the preservation of the rights and general well being of our miners.

Coal mining, not unlike many other industries, is rapidly approaching the point where its business is largely confined to corporations and combinations. The power and influence of aggregated wealth so fortify our corporations, that nothing short of heroic measures, backed by great numbers, can contend with them. To what purpose would individuals contend with such powerful forces? As well expect a babe to contend successfully with a giant. The truth is, the only solution we see to the labor problem is organization, with the "strike" to back it up. While many strikes apparently have proven useless and to no purpose, yet it is quite possible all have exerted an influence, in righting a wrong or furnishing much valuable experience, while many others have been successful after a hard conflict. One among many advantages gained may be mentioned as the result of organized effort is that 8 hours per day now constitutes a day's work. The writer, with 60 years of experience, has witnessed 8 hours, 10, 12 and 14 hours as a day's work, and he would enjoy living to see the day when every miner in every mining camp and every laborer in all the other trades, branded with the trade mark and stamped with the seal of labor union organizations. That the present unrest may continue until 8 hours shall become and constitute universally a day's work; that the earnings of the miner will reach a figure sufficient to support himself and family comfortably, so that the wife shall not feel compelled to leave her home duties to do the drudgery in other kitchens to keep the wolf from her door or his children of tender age forced from school to assist in the maintenance of the family.

If labor unions reduce instead of raising wages, why is that the trades working the fewer hours per day are the best paid? Again, why is it that the trades best organized are getting the highest wages, have less strikes and the most money in their treasuries? These are facts easily substantiated and within reach of all those competent to write intelligently upon the subject.

Capital makes concession to labor only upon the demand of the

laborers; this, in the main, being a fact, creates the necessity for organization on their part as a matter of self-defense.

Fewer hours and more pay based upon reason and equity as the motto of the laboring classes, will necessitate strikes and the conditions are frequently such as to make the strike justifiable.

We wish it distinctly understood that our position relative to strikes will not warrant the assumption that we advocate all kinds of strikes, for in truth we feel toward strikes very much like a noted character expressed himself concerning the trusts, that there are good and bad strikes. The only strike we could justify is one based upon justice and right, and that, too, after all reasonable means had been exhausted in the effort to secure justice.

An ill advised strike may be inaugurated by an imaginary leader who proffers his advice out of his super abundance of love for and interest in the rights and elevation of the working man. He discovers great wrongs that the miner is being made subject to by the operator, through his smooth and oily tongue with no other object in view than to feather his own nest and glorify self, while at the time there may be no just cause of complaint; this self assumed leader succeeds in carrying his influence to the point where the miners make comparison with their neighboring miners in other camps and find at last that the strike they are engaged in is ill advised and cannot command the sympathy of their fellow miners or even the most friendly observers of industrial matters. This we consider a bad strike, bringing unnecessary loss to the operator and misfortune and misery to the home of the miner.

We are sorry to state that in many recent organizations among the miners, that false impressions exist as to the real aims, principles and purposes of labor organization; that the organizations are diverted from the true and sound principles that the prudent and intelligent base their organization upon. Many members of the organization deem its purpose to be that of opposition and controversy rather than that of the preservation of harmony. We are afraid that many think and believe that the object of a labor organization is to create strikes and a means by which operators may be forced into subjection, for no sooner do some persons place their names on the books of a local union than they commence a trouble, using the organization as a club to force the operators to terms. If we understand the true aim and purpose of labor organizations, it is to avoid strikes and difficulties, and to amicably adjust all wrongs, real or imaginary, within the bounds of reason, and justice to both sides; that disputes may be less frequent, and that a better feeling may be created between em-

ployer and employe. The motto as old as our nation that "In union there is strength," cannot be applied with greater force, or adopted and practiced by any class of people to greater advantage than by our miners and the sooner they realize the true purpose and scope of their organization the more rapidly will they grow, prosper and command the respect of all fair minded people.

The interests of the miner and operator, when brought to the last analysis, based upon exact justice, are mutual. It would be unwise, where a larger number of miners are employed, to attempt to act without concerted action in the settlement of their differences, for otherwise all would be confusion; if this holds good locally it must be enlarged to meet the combinations on the other hand which embrace a number of states and not confined to any particular locality.

The laboring people are fast awakening to a sense of their real condition; when the trusts have grown so mighty that they can drive competition out of existence, influence the government in the treatment of its dependencies or colonies, control the coal fields, fix arbitrary prices for freight, for mining and for powder, what is left for labor to do but to present a solid front in opposition. Organization becomes per force of circumstances the sole protection of labor under existing conditions, and it is our earnest wish that its officers may always be selected with a view to their fitness from every point of view; that their conduct of affairs may be governed by such wisdom and prudence that strikes may become unknown and that all labor troubles may be adjusted by a board of arbitration respected and honored by both sides alike.

STRIKES BY COUNTIES.

ADAIR COUNTY.

The miners employed by Robt. Besanko struck for an advance of 5 cents per ton in the price for mining, which the operator refused to grant, and after being out 6 days, the miners returned to work at the old price. Six men involved in the strike.

BARTON COUNTY.

The miners employed by the Western Coal and Mining Company, near Minden, suspended work on the 20th of May, 1899, on a call made by the leaders of the miners' organization for a recognition of their association. There was no grievance or misunderstanding or any trouble whatever existing at this mine when its demand was made to suspend work. In fact the shaft had just been sunk and the mine *ped with machinery*, the only coal produced was gotten from

the driving of two or three six-foot entries, and the company was paying the regular scale of prices for all work done. There was no other demand made on the company than to recognize the organization of the United Mine Workers of America, which it refused to do. Suspension of work in this mine by union miners followed, and continued until the 3rd day of June, 1900, when, as we are informed, the organization called off the strike (or suspension as may be preferred) with all other restrictions. Union, as well as non-union, miners are allowed to find employment and work in said mine. I wish to state here that the mine did not remain idle during the 13 months of the suspension or scarcely any part of that time, as the company imported men to work therein. The mine was operated with non-union miners, and a large amount of work was done here during the year, and the company had all the hands they could put on when the suspension was called off, although of an inferior class of miners. While the strife between the organization and this company has been bitter and expensive, I am pleased to learn that both sides have modified their views with the chances good for a mutual understanding. I would not like to believe that we have a mine owner in the State of Missouri who objects to a labor organization, for they are the safe guards and preservation of every industry wherein labor is employed. If there were more of them with better judgment displayed by some of the labor leaders every industry in the land would be benefited. What matter does it make to the operators what price he pays the miner for his labor as long as he gets his margin of profit and a justifiable percentage on his investment, or why should the mine owner oppress the miner by fighting him and thus permit those who consume the fruits of his labor and who are well able to pay, become the beneficiaries of his oppression? The labor problem is easily solved if well considered, but a feeling of trust and confidence between employer and employe must be more thoroughly cultivated, as all grievance under such a state of feeling can the more readily be righted, because there would not exist that want of confidence so necessary in any discussion involving the rights of one or the other. I think that it is the privilege and right of all employes to belong to any organization that they deem proper under the law, for the purpose of mutual co-operation in protecting or advancing their interest. No employer has a right to ask or dictate to an employe as to what organization he shall belong, what religion he embraces or what politics he professes; these are matters that should be considered personal, and over which no one should have jurisdiction. During the unrest which has prevailed throughout the coal industry of this state for the year just closed, the writer has

endeavored to be the mutual friend of employer and employe, and to advise in the interest of harmony, for the interest of both are the same. We would like to see labor organization leaders changing some of their tactics and only demanding suspension of work when a question of wages and the rights of the miner is at stake. .

HENRY COUNTY.

The miners employed at the mine of John Hurst at Deepwater came out on a strike July 19, 1899, for 10 cents per ton advance for mining, which was given after being out two weeks. 10 men engaged.

LAFAYETTE COUNTY.

The miners employed at the mine of Carter & Son came out on the 3rd of March, demanding an advance of wages, which the operators refused, but after remaining out until the 28th of May the company granted the demand, and the men returned to work on the advance. 22 men involved.

The miners employed by the Bonanza Coal Company walked out on the 26th day of March on account of the company refusing to collect the dues of the union and check-weighman, and had not returned to work at the close of the fiscal year. 40 men engaged in the walk out.

The miners employed at the mines of the Lexington Coal Company in the surroundings of Lexington, struck sometime in July, 1899, because the company refused to recognize the organization of the United Mine Workers of America, or sign the Moberly miners' scale. After the adoption of the yearly wage schedule scale at Moberly, June 29, 1899, a demand was made by the union leaders on all operators not present at the conference to sign the scale just as if they were present, which demand this company refused to do, and the men walked out at all of their mines. Namely, Graddy, McDowell, Glen Oak, Riverton No. 1, and the Seawell mine. Employes of the Graddy effected were 121 in number. Strike lasted 9 days. 84 men walked out at the McDowell mine and strike lasted 9 days. There were 90 men effected at Glen Oak, and strike lasted 12 days. Riverton No. 1 had 56 men effected, and the strike lasted 29 days, and the strike lasted 12 days at the Seawell mine, and effected 29 men.

The settlement of this strike was brought about by the general manager of the coal company coming to Lexington when he met his employes, discussed the situation, presented his own scale to the miners, which was readily adopted, and the men voluntarily went to work and continued so throughout the busy season in harmony. These mines are under the same management as the mine we have already mentioned in Barton county, and the writer is reliably informed that

neither does this company or its management propose making a fight against labor organizations. It may object to certain methods adopted by organizations outside in attempting to regulate our home affairs, but further than this we do not believe its opposition extends.

The miners employed by Mr. J. C. McGrew had some little trouble with their operator during the past winter in regard to discharging his pit boss. Mr. McGrew was one of the first of the operators in the surroundings of Lexington to sign the scale and worked in harmony with his men until the dispute came concerning the discharge of the pit boss, the men objecting to the discharge of the man, the strike followed, which was stubbornly fought. Mr. McGrew has this to say in regard to the present year. He says, that he has not settled yet with his miners for the coming year, but hopes to do so amicably, and adjust prices to the mutual satisfaction of both sides. He has no fight to make on labor, and is ready to pay as much for mining as any of his neighbors.

The miners of the Waverly Coal Company made a demand for an increase in the price of mining, which was refused; they went back to work at the old price after being out 10 days. 22 men engaged.

MACON COUNTY.

The employes of the Helmet Mining Company made a demand on their employers to sign the Moberly wage scale, which they refused to do, and the miners brought out their tools on the 1st day of August, 1899, and stayed out until the 28th of September, when the company signed the scale and the men went back to work. There were 90 men involved.

In May, 1899, a demand was made by the leaders of the United Mine Workers' Association on the employes of the Kansas and Texas Coal Company to suspend work in sympathy with their fellow miners, who were then on strike in other states. The demand was promptly complied with, and the miners walked out to a man, numbering close to 700 men, and the suspension continues at these mines up the present writing, so far as the part taken by the organization is concerned, but the mines have been steadily operated by a full supply of non-union men which the coal company imported into this country from nearly every part of the world, of every race, nationality and color. They are a very inferior class of miners, and the company has been at a great expense in importing them, but it succeeded in filling up its mines, and are getting out all the coal they can handle.

There was no grievance existing between the Kansas & Texas Coal Company and its employes when the suspension was called, nor

was there any demand made on the coal company for anything prior to the walk out. No one was more surprised at the suspension of work than the officials of the coal company, for they were not consulted or advised of the contemplated plan by either a union leader or any of their own employes previous to the walk out. Neither was the coal company or its employes responsible for the commencement of the trouble, as it originated in other states. Conditions remained as above until after the Moberly convention, when a scale of wages was adopted, and a request was made of the company to sign the scale, also to recognize the miners' organization; the company refused both requests, and the mines are being operated by non-union men. The struggle between this company and the United Mine Workers' organization has been bitter and expensive. Considerable prejudice, spite and selfishness has been displayed without a victory, so far, to be accorded to either side. This unfortunate suspension of work will not only work injury to both sides engaged in it, but it will leave the state burdened with a greater number of scab miners.

We are informed that the trouble which caused this suspension originated at a way place in the Indian Territory where about 60 or 70 miners were employed, and by the efforts of the leaders of the organization, spread to other states and last of all to Missouri

It is to be hoped that this suicidal strike will soon end by an amicable understanding between the old practical miners and the management of this company, as miners and mines must suffer loss as a result of continuing the strike further; the undesirable character of the men now occupying the places of competent and worthy miners cannot be other than injurious to the mines and community.

RANDOLPH COUNTY.

The miners employed at the mines of the Jones and Davis Coal Company suspended work on the 1st of July, 1899. Demand was made of the company to recognize the miners' organization and to sign the Moberly wage scale. The company refusing, the miners went out and the mines laid idle for sixty days. On the 1st of September the operators recognized the organization, signed the scale, and the old hands returned to work at an advance of 5 cents per ton for mining. There were 285 men effected.

About the 1st of August, 1899, a demand was made on the miners of the Elliott Coal Company by the leaders of the United Mine Workers' organization to suspend work in order to cut off the supply of coal furnished by these mines to the Missouri, Kansas & Texas Railroad; that road being the property of one of the "Big Four," which

the organization was fighting. The miners of the Elliott Coal Company complied with the demand and refused to load coal for said railroad, thereby shutting off fully (4-5) four-fifths of the trade of the mine. This self-inflicted stoppage of work on the part of the miners at these mines kept the company in a state of uncertainty and suspense, it having signed the Moberly scale and conceded to all the demands made by the organization could not understand the cause for thus arbitrarily bringing about a suspension of work, especially as all demands had been met. To make this stoppage of work the more objectionable for employer and employe was the fact that the mines had been supplying a trade of more than 25 years standing. It is also one of the best organized camps in the United States and the best of feeling and harmony existed between the operators and their miners. No strike or trouble of any kind had occurred here for ten years or more.

The situation at this mine was peculiarly aggravated, and disinterested persons regarded the officials of the labor organization as using the miners at this place as ammunition to fight the railroad with. Then the enforced idleness at these mines, it was noticed, was not preventing the railroad from securing all the coal it wanted for it was plentifully supplied with coal, and this same coal was furnished with scab labor. Train load after train load of this scab mined coal passed these mines every day, with the result that scab labor was being fostered and fed while the union miner was in want. The scab was busy, the union man was idle, and this state of affairs continued for a year. This is an instance of unwise and unsound judgment, for the union miners were punished, and their enemies were rewarded. When a company meets every demand made by organized labor, as did the Elliott Company, it deserves the support of every union man in the country. The treatment of this company was a great blunder and suggests the wisdom of selecting well balanced men to decide matters of this kind.

The employes of the Interstate Coal Company was requested by the leaders of the United Mine Workers' organization not to load coal for the Missouri, Kansas & Texas Railroad. The first request was made in June, 1899, and as the coal furnished the railroad company constituted about four-fifths of the trade of the mine the coal company decided to close the mine rather than operate it at a loss, so the mine remained idle for about 5 months. In November of same year the company signed the Moberly scale and commenced operation with the understanding that it be allowed to sell coal to whomsoever

it saw fit, and the mine was operated with that understanding until the month of April, 1900, when orders came again from the high officials of the organization not to load any more coal for the M., K. & T. R. R. until further notice, which order the men obeyed, the mine was closed down and has remained closed up to the present time with little prospect of ever starting up again. This mine, when closed down in June, 1899, had an out-put of 600 tons per day, was giving employment to 250 hands, and was one of the best and most practically operated mines in the state. The employes were well organized many years before this trouble made its appearance here, and the best of feeling existed between employer and employe. There was no grievance of any kind here when the demand was made on the miners to quit loading coal for said railroad, nor did the trade that this mine was supplying belong to any of the striking districts, or to any other part of the State.

This mine is practically ruined, and miners who had by much sacrifice partially paid for little homes on the monthly installment plan, being deprived of work, failed to meet payments and lost all. Others with families were denied the very necessities of life, and eked out an existence by the small sums allowed them by the organization.

The employes of this mine, as well as that of the Elliott, together with many of their friends, realize that the order to suspend work at these mines was a grievous mistake, ill advised and not warranted by the conditions and circumstances surrounding them. Had the same judgment been displayed in advising the miners at above named mines, that has been so wisely and prudently exercised by the head officials of the United Mine Workers' Association in dealing with the Pennsylvania strike, the unfortunate suspension of work would have been avoided to say nothing of the untold sacrifices and sufferings that would have been avoided. The parties who were responsible for this strike failed to see what cool headed men saw at the time, and it took them one year to discover their mistake. The indications point to a much better class of leaders for the future in this State, from among the organizations, a thing most devoutly wished for, as there is too much at stake to permit other than the most prudent, sober and intelligent men to exercise such control over their fellows.

RAY COUNTY.

The Hubbell Coal Company refused to sign the Moberly scale at the request of the official of the United Mine Workers' organization, and the men suspended work on the 23rd day of July, 1899, and remained out until the 24th day of September, when the company agreed to sign the miners scale and give the advance of $7\frac{1}{2}$ cents per ton on the price of mining as demanded in the scale; the miners returned to work after being out two months. About 30 men engaged.

The miners employed at the Wilson mine struck for an advance in the price of mining, and was out 30 days when the operator granted the demand and the men returned to work. 25 men involved.

The miners employed at the mines of the Richmond & Camden Coal Company demanded an advance of $7\frac{1}{2}$ cents per ton in the price of mining, the recognition of the United Mine Workers' organization, and the signing of the Moberly wage scale. This the company refused to concede, and on the 25th day of July, 1899, the miners at all their mines suspended work. The company granted the advance, recognized the organization and signed the scale, and work was resumed on or about the 13th of September. The writer was informed at the time of this strike that there was another contract existing between this company and its employes, which would not have expired until the 1st of September, and it considered it inconsistent to have two contracts in force at the one time. There were about 300 men involved.

The employes of the Pickering Coal Company walked out on the 25th day of July, 1899, and demanded an advance of $7\frac{1}{2}$ cents per ton for mining, which the company refused to pay. The men remained out until the 14th of September, when the operators granted the advance and signed the scale. Work was resumed after 51 days of idleness. 55 men engaged.

The miners employed by the Pence & Calnen Coal Company suspended work about the 25th day of July, 1899, for advance in the price of mining, recognition of the United Mine Workers' organization and signing the Moberly wage scale. The mine laid idle until the middle part of September, when work was resumed, the company having granted all their demands. About 70 men involved.

The miners employed by the Kansas & Texas Coal Company at Fleming walked out sometime in July and demanded the $7\frac{1}{2}$ cents per ton advance in mining, recognition of the miners' organization and

signing the Moberly wage scale. This the company refused to concede, and the mine remained closed until the 14th of October, 1899, when the Murlin Coal Company leased the mine, signed the scale and gave the advance, operating it as a union mine. There were about 60 men involved in the strike.

OPERATORS' AND MINERS' CONVENTION.

Since the miners of Missouri have been so numerous and strongly organized by the United Mine Workers of America, it has become a mutual understanding between the miners and operators that they meet together in conference every year to adjust differences and adopt a scale of prices to work on for the ensuing year. While the operators appeared very loath to act at the first meeting and held the conference with fear and mistrust, yet after the first conference was over a scale of wages adopted and experimented upon for one year with such success and so satisfactory for the operators that I am justified in saying that the operators were as anxious as the miners for another conference, and an adoption of a wage scale for the ensuing year. Still another conference was called and held at Moberly on the 21st of June, 1900, which was very largely attended by operators and miners, and the following scale and contract was adopted:

MISSOURI MINERS' CONTRACT.

This agreement made and entered into this 21st day of June, 1900, by and between the undersigned coal operators of the State of Missouri, parties of the first part, and the United Mine Workers of America, witnesseth:

Section 1. We agree to pay for coal on a mine run basis as follow: Bevier, Ardmore, Huntsville, Santiago and Rich Hill, 60c per ton; Elliott and Higbee, 85c per ton; Vandalia, 91c per ton; Bush Creek and Lafayette county, \$1.00 per ton; Novinger and Danforth, 65c per ton; Stahl, 82½c per ton; Higbee, Elliott and Vandalia shall be on the lump coal basis; Waverly, 70c per ton; Trenton, \$1.15 per ton; Richmond, 95c per ton; Lingo, 72½c per ton; Marceline, \$1.00 per ton.

The above prices remain in effect for one year from Sept. 1st, 1900.

The prices of yardage, dead work and day work throughout the State shall be submitted to a board of arbitration.

Section 2. To protect operators from being imposed on from unfair dealing and to raise the standard of workmanship among the the operators reserve the right to discharge any miner or miners

who send out mine run coal which is below grade—the same to be determined by the weighman and check weighman. Also that the quality of mine run coal must be practically free from sulphur, clay, slate and dirt.

Section 3. On and after September 1st, 1900, 8 hours actual work shall constitute a day's work; 48 hours per week and no part of the 8 hours to be used in lowering and hoisting the men. Sundays and legal holidays excepted, and also where it is now the custom to allow half holiday on pay days.

Section 4. The price of powder shall remain \$2.00 per keg during the life of this contract.

Section 5. The check weighman shall have check number for himself and for collections same as miner to check off his pay and collections adopting what is known as the check-off system, and he will be paid by the miners. Compulsory collections of doctors' bills will not be made, but will be collected from list signed at the option of the miner.

Section 6. Payment of wages will be made semi-monthly as heretofore.

Section 7. Section 8 of last year's contract shall be referred to arbitration.

Section 8. For the prevention of stoppage of work for any grievances the following plan will be adopted: When a difference arises between a miner or miners or day hands and an operator, which cannot be settled by the mine superintendent and the pit committee, the same shall be referred to a board of arbitration, which shall be appointed, consisting of two operators of the district and two miners, and if these four cannot agree, they shall choose a fifth man. The mine or mines thus affected shall continue in operation pending the decision of said board of arbitration, and whatever decision shall be reached by a majority of said board shall be final and binding on all parties.

Section 9. If any employe or employes shall cause a stoppage of work in violation of this contract he shall be subject to discharge by this company.

Section 10. That owing to the advance of 15c per ton in the price of mining in Trenton, that the price shall remain the same as last year. That the general condition and government of the Trenton mines shall remain practically the same as heretofore.

Section 11. The following is to be submitted to the board of arbitration: The right of all operators of contracting any work in or about the mines is conceded and not to be interfered with by any

local union or members thereof. The contractors to be governed by the scale as to prices and hours of labor.

Section 12. That engineers, firemen, blacksmiths, weighmen and night watchman do not come under the terms and conditions of this agreement.

Section 13. When a mine or any part of a mine be closed down throwing men out of work, they may be employed in any other mine that may be operating at that time, they to be the first to be taken on when this place be re-opened.

Section 14. There shall be no demands made locally that are in conflict with this agreement, and no new conditions imposed affecting the same, excepting those decided by the arbitration board on the sections herein referred to them.

Section 15. It is agreed that on the first day of June, 1901, the operators and miners represented by the executive board and parties to the agreement respectively will meet on that day in Kansas City and go into session to agree upon and formulate a new contract, and all differences that cannot be amicably settled by a board of arbitration consisting of two operators chosen by the executive board of miners, those four to choose a fifth member, and the decision of this board shall be final and binding on all parties.

Section 16. In case that any matter coming up between operator and miner for arbitration, said arbitration must take place inside of 20 days and decision be rendered.

R. G. ROMBAUER,

Chairman of Missouri Operators.

U. M. W. of A.

W. T. WRIGHT, President.

JAMES BLEE, Vice-President.

GEO. COLVILLE, Ex. B.

JNO. W. SCOTT, Ex. B.

F. W. GILMORE, Ex. B.

Approved:

FRED DILCHER, Of National Ex. Board, U. M. W. of A.

REPORT OF ARBITRATION COMMITTEE.

Kansas City, Mo., Aug. 4, 1900.

We, the undersigned arbitrators selected to decide the matters referred to arbitration as stated in the foregoing contract excepting the prices of mining in Marceline, Ray county, and Lingo, state that we agreed upon the following:

The prices for day labor for track men and timbermen,

\$2.12 per day each; for trappers \$1 per day; all other under-ground men, \$1.94 per day; top men, \$1.55 per day.

For yardage and dead work, six per cent. advance over the price paid under last year's contract.

Section 7 shall read: All miners employed in room and pillar work and in long-wall mines are to use due and workmanlike care to keep their rooms safe. After a miner has properly timbered his room once to the satisfaction of the mine manager, he shall not be required to retimber or care for the roadway or any part of said room between the switch and a distance of fifteen feet back from the face of said room. The miner agrees to be responsible for the care of said last fifteen feet of his room, except where crossbars are necessary, then for the crossbars put up by said miner, he shall receive the regular day wage per hour, or the company may perform such work at their option, which shall be done within a reasonable time, provided that in case a room should run into extraordinary bad roof, and after due care on the part of the miner said room should cave in within the distance prescribed in the foregoing, then the company shall furnish the labor to clean up and secure said room. All necessary timber and rails shall be delivered at the working switch of each place by the company.

The arbitrators decide that the right of all operators of contracting any work in or about the mines, excepting the mining of coal, is conceded and not to be interfered with by any local union or members thereof. The contractors to be governed by the scale as to price and hours of labor.

FRANK A. FAXON,
H. M. HOLDEN,
L. J. LOOMIS,
CHAS. DUNCAN,
GEO. COLVILLE.

Kansas City, Mo. Aug. 7, 1900.

The Board of Arbitrators chosen to settle the price of mining and other differences between the operators and miners of Ray county, Mo., have decided as follows:

The price of mining in Ray county for the year beginning September 1st, 1900, and ending August 31, 1901, shall be ninety-five (95) cents per ton of two thousand (2000) pounds mine run coal taken from the face by the company. The miners agree to push what is known as the "Home Box" or last car to the bottom of the shaft or entrance to the mine, where there is no shaft, where the distance to said bottom or entrance does not exceed five hundred (500) feet. Or

company has a switch or siding that will hold the so-called "Home Box" within the prescribed distance, then the miner will bring said box to such siding.

It is understood that the five hundred (500) feet which the miner agrees to push his last car shall be measured from the road head towards the bottom or entrance to the mine.

The company agrees to have empty cars pushed half the distance from the working breast.

JOHN GIBSON,
H. C. RAMSEY,
CHAS. DUNCAN,
I. PICKERING,
W. T. WRIGHT.

The price of mining at Lingo has been agreed upon at 72½ cents.

August 8, 1900.

The price of mining at Marceline has been agreed upon at \$1.00.

After looking over the contract carefully the reader can easily see that the conference was conducted in the spirit of justice and fairness on both sides, the demands of the miners have been conservative and fair, while on the other hand the operators conceded to all that they considered right and could afford to pay. All differences left at the convention for arbitration have been amicably settled.

The writer thinks well of the contract and settlement for the current year, believing that the miners of Missouri displayed good judgment in adopting this scale. While the advance that the miners gain this year is only about 6 per cent. on an average, yet it is all they could expect to gain without another struggle, for which they were totally unprepared. The writer also heartily approves of the action and wisdom of the Missouri miners in their last conference in managing and conducting their own affairs. We consider it an insult to the intelligence of our miners to have a guardian over them when conferring with the operators on the wage scale, and this guardian never having worked within 500 miles of the Missouri coal field, and wholly unfamiliar with the marketing of the product. We have, in Missouri, a class of miners who are the equals of the shrewdest and most intelligent to be found in any mining state in the Union. They are conservative, reasonable and just, and familiar with every detail connected with coal mining. If our labor organizations must combine to become strong and effective, and a central power created for the government of the whole, there be a limit to the powers thus granted, otherwise this power

in the hands of a few men, like all things human, is subject to an abuse of power as displayed in different parts of the State during the past year. We think that there should be certain reserved rights to the miners of the respective states, if, for instance, the miners of Missouri feel themselves in a class somewhat different from the surrounding states, why should they not have the privilege to dictate the policy best suited to their condition and surroundings, and be considered the true parties to treat, settle and make terms with their operators and at same time be governed by the general rules of the United Mine Workers' organization; but empowered to act for themselves in State affairs. This, it seems to me, would remove much of the friction and destroy the sting of submitting these matters to a set of men with whom our operators hold no business relations whatever.

ACCIDENTS IN COAL MINES.

During the past year there were 33 accidents in our coal mines, of which number, 10 were fatal and 23 non-fatal. Compared with the previous year it is a pleasure to record four less fatalities; the number of non-fatal accidents being exactly the same. We feel justified by the facts in making the statement, that had greater care been exercised by those meeting with accident, the number would be much less than we are compelled to record.

Accidents are liable to occur in coal mines under the wisest provisions and most careful management, as they do in other industries, with the chances, however, for accidents in the coal mines decidedly greater. The miner, in the performance of his daily duties, is subject to more dangers seen and unseen than are workmen in almost any other occupation. From the time the miner sets foot on the cage in the morning preparatory to his descent, he confronts possible perils unthought of by his fellow labors in other trades; he begins by being lowered in a cage; he hangs suspended by a rope between the top and bottom of a shaft which may be 100 feet or 400 feet deep; should the steady arm of the engineer become affected by sickness or accident, or a brake in the machinery occur, death or serious injury must result. When the bottom is reached the miner, in many instances, must travel thousands of feet underground to his working place through mud and water; when his working place is reached he must expect to confine himself for the day to a stooping position when not on his knees at work, for his roof will not admit of his standing erect, besides being compelled to grope his way in dense darkness save and except

the feeble light furnished by the little lamp he continually wears on his cap.

His environments are such as would cause an inexperienced person continual alarm, for the knowledge that deadly gases and other dangers are lurking in imperceptible places, all around him, is not conducive to a feeling of entire safety, and especially so in view of the well founded impression that the work of a coal miner is extra hazardous.

As usual the world over, falls of roof claim the greater number of victims, this year showing that 70 per cent. of all the accidents were due to this cause. Falls of coal shows 15 per cent. Mine car accidents, 6 per cent.; blasts, 3 per cent.; fall of timber down shaft, 3 per cent.; falling on screen, 3 per cent.

After visiting and carefully examining the places and causes leading to the accidents enumerated, we are forced to the conclusion that in a majority of the cases the injured persons were themselves to blame, and resulting largely from a want of practical training and experience in underground work.

Of the 10 fatal accidents, 4 of them were negroes, and two of these under 20 years of age. Two others were removed from this sphere of usefulness to the great beyond at the early age of 19. One of the two, Stebben's, hereinafter mentioned, was caught and crushed to death through his own neglect. The two miners killed in the Adair county mines by reason of inexperience and a failure to take in their surroundings as the practiced eye would do, neglected to properly protect themselves. Out of the ten fatal accidents, we consider four of them as unavoidable, while the remaining six may be said to have lost their lives by that reckless carelessness so often exercised by those so wanting in mining knowledge as to be unable to detect the dangers surrounding them.

Out of the 23 non-fatal accidents, the accident table shows that 11 of them occurred at mine No. 61, Kansas & Texas Coal Co., the larger number of which we believe were negroes imported to this mine last year from other states to take the place of the regular miners who were on a strike, and many of these negroes possessed at best a very limited knowledge of underground work. So long as this class of looseness remains unprovided for, and our laws permit operators and superintendents to fill our mines with the careless, indifferent and the inexperienced, just so long will our mines produce a large annual crop of accidents. A great wrong is permitted to exist in this particular feature of coal mining that would not be countenanced in *other lines of business*. In almost all other kinds of trade, men are

employed because of their fitness and ability to perform intelligently the work given them to do. Not so with our mines, for they are more and more each succeeding year being filled with the most ignorant, unreliable, impractical and reckless; representatives of the lowest, the vilest and most degraded classes of humanity. Large numbers of this class find employment in our mines and they are not only incapable of properly guarding and protecting their own lives, but they endanger the lives of the worthy and practical miner who per force of circumstances is compelled to be sandwiched in his work between this tramp element. If miners were paid by the day instead of by the ton or bushel, and men were placed on their merits and qualifications, how long would it take to revolutionize the conditions existing in our mines, and where, Oh where would you look for a tramp miner of the nature and character described as now crowding our mines?

The fears entertained with reference to accidents appies with equal if not greater force for the current year than heretofore; for, with the knowledge that during the past twelve months that hundreds of negroes, Fins, Mexicans and other equally undesirable importations have been inflicted upon our mining communities, we must expect numerous accidents as a result of the introduction of a class of labor unacquainted with our methods, and the character and nature of our coal, to say nothing of their want of mining knowledge.

The wisdom of enacting laws such as we have in our statutes for the prevention of accidents, has been fully demonstrated by the gradual diminution of fatalities; yet our Legislatures never passed a law in which the element of safety to our miners played so prominent a part as the original bill embraced and since known as section 8828. If this bill had been permitted to pass the Senate, as it did in the House, our mines would have been rid of the worthless, indifferent class that not only disgrace the mining fraternity, but swell so largely our list of accidents. This bill originated with the miners of our State; it was introduced in the House and passed without amendment. The member from Macon county left his seat in the House and followed it to the Senate and succeeded in adding an amendment which virtually destroyed the aim and purpose of the bill, and in his laudable endeavor to defeat the wishes of the miners was ably assisted by the Senator from Ray county; both of these gentlemen represent large coal producing counties. We would advise our miners to take steps looking to the repeal of the present law, and substitute in its place the bill as originally drawn up. The law as it now stands is a dead letter; but had it been permitted to become a law, as originally drafted

is very possible that lives and limbs would have been saved during the past year.

The mines of the State are well supplied with safety appliances, as required by law, and their general condition well up to the standard demanded. If our mine managers could be prevailed upon to employ only competent men, we are quite sure that accidents would be brought to the lowest possible minimum.

Following will be found a statement in detail of each fatal and non-fatal accident which occurred in our mines during the fiscal year ending June 30, 1900:

FATAL ACCIDENTS.

ADAIR COUNTY.

Jess Behrens, a miner employed by the Rombauer Coal Company near Novinger, was fatally injured January 16, 1900, by a fall of shate. Deceased had been working off a shot the night previous, but had not worked it all off and started on the same shot the first thing in the morning, and while in the act and position to commence mining he was caught by a piece of slate about 5 feet square and 5 inches thick, crushing him under it. The accident happened about ten minutes past 7 in the morning and he died at 3 in the afternoon. I visited the mine soon after the accident occurred, and on investigation was informed that the deceased was not a practical miner, having worked but very little in coal mines, and there is no plainer proof of that fact than the judgment he used on that fatal morning by going to work without sounding the roof and taking down loose pieces. It is safe here to say that no accident would have occurred at this mine on that morning if a practical miner had been working in that room, for he would have anticipated the dangers of his work standing over night and would have looked for them the first thing the next morning before risking his life under loose roof. This accident shows reckless carelessness on the part of the unfortunate victim. Deceased was 38 years of age, married, but had no children. No inquest held.

R. Peterson, a miner, employed by the C. B. Havens Coal Company at Danforth, was instantly killed by a fall of roof on the 28th of March, 1900. Deceased was drilling a hole with the machine, the room had just passed through a horse back, which caused some slips running through the roof on a different inclination to come together over the place where the deceased stood to work. This slip was in the shape of a trough which dropped down and caught him. He had

been warned of his danger by his fellow miner working with him, and that part of the roof could have been easily secured by the setting of two props under it. I visited the mine soon after the accident and made a careful investigation; the place had not been disturbed from the time the accident occurred until the day of my visit. On inquiry I found that the deceased had only worked a few weeks in the mines, and was wholly ignorant of his dangers. Just here is another victim of reckless carelessness wherein the unfortunate himself pays the penalty of his ignorance with his own life, and further proof of the necessity of enacting more stringent laws to regulate the employment of underground employes. Deceased was married, and had one child. Coroner's verdict was that deceased came to his death from a fall of rock in his working place, same being insufficiently propped through fault of deceased and his partner.

BATES COUNTY.

Peter Perretto and Seraphim Koeketeart, miners, employed by the Rich Hill Coal Company at mine No. 15, near Rich Hill, were instantly killed March 22, 1900, by a fall of slate. I reached the scene of the accident on the morning of the 23rd and made a thorough investigation of every detail connected with the accident, and took part in examining witnesses at the coroner's inquest, particulars of which will be found in full in this report. On reaching the mine I found that the bodies had been taken out, but the mine otherwise was left undisturbed. The accident occurred on the 15th east entry at about 8 o'clock in the morning. The entries in this mine are driven 12 feet wide with a roadway on one side and room for dirt on the other side, and when the roof is heavy, bad or dangerous, a row of props is set along side the roadway to secure it. On investigation I learned that a fall of slate had been discovered by an employe and reported to the foreman before the men on that morning had gone to their working places; that this fall of material averaged one foot in thickness for the entire width of the entry and extended a distance of thirty feet; that the foreman had employed the two men afterwards killed with two others miners, to clean up the fall as soon as possible in order that the business of the mine might proceed with as little delay as possible; that these men, while thus engaged cleaning that fall, the roof above them gave way and caught three out of the four men under it, but the life of one of the three was saved by the rock resting on other objects until he was taken out alive, but badly crushed; but he, too, has since died of his injuries, while the other two were badly crushed. *The rock that fell on the men was 25 feet long, from 7 to 8*

feet wide, 15 inches thick, and weighed 15 tons or more. It was shown at the inquest that the second fall, which caught the men, fell without giving any warning, and must have broken through the night and made ready to drop at the least move in the morning. It was also shown at the inquest that all of the men were practical and careful miners, could detect danger as soon as any one, as evidenced by the testimony of Mr. Grimm, who had worked over eight months with Parretto, and who himself had a narrow escape. He said that Mr. Parretto was as careful a man as he ever saw. The roof over the entry after the fall and where the accident occurred was sound and solid without a break, and props had been set along the roadway on the outside of the fall, which made the entry perfectly secure. In fact all the entries in the mine are well secured, and I consider Mr. McKinnon, the mine foreman, one of the most practical and careful men in the State. Further particulars will be found by reading the evidence given at the coroner's inquest.

Testimony taken at the inquest held over the bodies of Peter Perretto and Seraphim Koeketeart, held on the 23rd day of March, 1900, in Rich Hill, Missouri, by John R. White, justice of the peace and acting coroner of Bates county, Missouri, assisted by Chas. Evans, State Mine Inspector.

• Alex McKinnon's testimony:

Yesterday morning about 8 o'clock, as near as I can judge, I got a call that there was a fall in the south on 15th east entry, and that there were six places shut off by the fall. I went to the entry where the fall was at, and I found six places shut off from loading coal; when I got to the fall I went into the entry and called above to the two men to come to help clean up the fall, and Lafayette Grim and Peter Perretto followed me out, and as I was on my way out of the place I called on Peter Hayes, and he said he was sick, that he had to go home, I stepped to a man by the name of Louis Rons and asked him to come out to help clean up the fall, then I went out to Barny Marchello and told him to come out and help to clean; that was four men that I had to clean up the fall. I will state to the jury the reason that I called these men out was that they could not load any coal on account of the fall; then I went for the timber man, Nick Mayers, and his partner, Frank Mayers, and they came with me to where the fall was and I think I asked Nick Mayers what he wanted in the shape of timbers; he told me to send him a load of 5½ props; that he had cross bars lying in the entry that he could get. I went on top to order those props and had a man send the props down; went

own myself to go back into where the fall was to see the men that were cleaning it and met two boys coming out with the report that the men were caught; I went in as fast as I could get there, and when I got there, there were two men killed and one fast under the rock that I could talk to. I tried to get him out from under the rock, but he was fast by the arm, and we couldn't get him out at the time; I called a man out to get a pair of jacks to raise the rock without breaking it, and went back out to hurry the men as fast as I could; while I was out the men that were working where the accident occurred, broke the rocks up and succeeded in setting the wounded man out.

Q. Mr. Anderson: How long after the accident before you got the man out? A. I cannot tell exactly just how long, maybe it was two hours.

Q. Mr. Loeb: Where were these men when the accident occurred? A. They were at the first fall cleaning the first fall when the second fall fell on them. The reason I believe that I did not discover the rock was loose, I believe it was because it was so thick was the reason I could not tell.

Q. Mr. Cook: How thick was the rock? A. I think it was about 8 inches thick.

Q. Mr. Cook: Where were the men located, under the thick end or the thin end? A. About 11 feet from the thick end.

Q. Mr. J. J. Heck: Have you any practical way of telling whether the roof is dangerous only by sounding? A. Sounding is the only practical way to discover whether it is safe or not.

Q. Mr. Loeb: Were these men ordered there by you? A. All the men working there were ordered there by me.

Q. Mr. Anderson: Were they both old miners? A. Yes.

Q. Mr. Loeb: You do not know whether they sounded the roof themselves or not? A. I do not.

Q. Mr. Mudd: Do you think this was caused by gas? A. There was no gas to amount to anything there.

Q. Mr. Evans, Mine Inspector: When did you see or examine the roof at that particular place or know anything about it previous to the morning of the accident? A. The day before, that was on Wednesday at something about half past one o'clock, I came through that entry and sounded this roof along where this fall occurred and discovered that she was cutting along the rib.

Q. Did you begin work on it then to make it safe? A. Yes, sir; we began setting a row of props along the entry, and I went for helpers to help set the row of props to save us having a fall there.

Q. Do you know how many props were set there? A. No, sir;

I remember asking them if I should send them any more props and they said there were plenty there.

Q. Well, the next morning what condition did you find? A. Our gas man came out at 6 o'clock or a little after and reported everything clear.

Q. When did you find out about the fall, the first fall? A. I think it was about 8 o'clock.

Q. From whom did you learn? A. There was a boy called me from the east entry on the east side of the mine.

Q. What condition did you find it then? A. I found a fall that stopped six places on me.

Q. How thick was the rock that was down then? A. I think the thickest of it was about a foot thick.

Q. Did that fall come down where those props had been set? A. Yes, sir.

Q. You went there and made arrangements to have it cleaned up? A. Yes, sir.

Q. While there did you make an examination of the roof? A. I did.

Q. How, Mr. McKinnon?

A. I carry a hammer for that purpose and sounded it with the hammer.

Q. And you thought it solid, thought it safe?

A. Yes, sir; I thought it safe.

Q. And you went out to order timber for your men?

A. Yes, sir.

Q. How long was it, Mr. McKinnon, after you left until you heard about the fall?

A. I do not think it was more than 25 minutes until I got the call that the men were fast.

Q. Were there any remarks made by you or any of the men in regard to the safty of the roof?

A. No, I did not hear any remarks.

Q. I will ask you if the men were experienced miners?

A. I think they were all experienced miners.

Q. How long have they worked for you?

A. Well one of them has worked, you refer to the men that were killed?

A. Yes, sir.

A. Well, one of them that was killed started to work sometime in December and the other fellow has been working since I came to 15; he was there when I came there five years ago last June.

Q. Their work was satisfactory?

A. Yes, sir.

Q. You considered them practical miners in every respect?

A. Yes, sir.

Q. Mr. Loeb, are those the identical men that Mr. White has named on his paper?

A. Yes, sir; those are the men.

Q. Mr. J. J. Heck, in driving a room off the entry don't that weaken the roof, or was there a room driven off?

A. Yes, sir; there was a room driven off near, it may weaken the roof where there is a bad top, I expect it does, but that is what we drive the entries for.

Q. Mr. Anderson, where this fall took place, was the roof properly propped?

A. We propped it up the evening before.

Q. Was the propping done to hold up the slate that fell on the men?

A. No, sir; the propping I had done was done before the first fall.

Q. It sounded solid?

A. Yes, sir.

Q. Did you think it necessary to prop this?

A. Yes, sir.

Q. And it fell where it was being propped?

A. When our top breaks we deem it necessary then to take our timber and retimber, the same as we were going to do yesterday morning.

Q. Mr. Ballfinch, are these entries timbered on both sides or in the center, and had this one broken loose on the rib and had not reached the center?

A. Yes, sir; timbered in the center.

Q. Mr. Anderson, the men were working under this rock that had been propped to make it safe?

A. Yes, sir; they were working under it but there was a fall came after the propping was done.

Q. Did you think it was safe?

A. I thought it was solid.

ABE McKINNON.

Nick Mayer's testimony:

Yesterday morning when I first went to work I started south to the face of the entry. My foreman, Mr. McKinnon, came to me about

a little after 8 o'clock and told me there was a fall in the 15th east entry and he says, take your boy and come up there and help clean it up. Mr. McKinnon was there at the time I got there and he asked me what kind of props I wanted there, and I told him I wanted 5½ feet; he said all right. Mr. McKinnon left and I broke rocks for about 10 minutes and one of the hands that worked along side of me, says Nick, I don't believe this top is extra good it has begun breaking down in little pieces. I took my pick and sounded the roof and I saw that it wasn't solid. I went and cut two hitchings for timber and after I had the hitchings I went out on the parting and cut three timbers 4 by 6, and I told the driver to get them in as quick as he could. I got back within 100 feet of the place and one of the boys came running and said there were three men under the fall. I ran and left the car and went to the place where the accident was and I looked under the rock and there was only a few men present and I crawled under the rock to where the live man was hollering to try to get him out. I took all the slate out and I saw he was lose only his hand and I couldn't get him loose. Then I made four pillars around the man with cap pieces. After I had him secure I went on top and told my boy, Henry Mayers, and another helper there to chip the rock and get his hand loose, they did and I told Mr. Ballard to pull him out that he was loose.

Q. Mr. Anderson, were all three men under this one rock?

A. No, sir; the rock was broken.

Q. Mr. Loeb, how long have you been working in 15?

A. I have been working there for the last nine years, since the shaft was sunk.

Q. Mr. Ballfinch, were those men that were killed as capable of knowing the danger they were in, in working under this rock, as you were?

A. I do not know; of course they were practical miners.

Q. Mr. Ballfinch, they had no warning only what they knew?

A. There was a little chipping when I was digging the hitchings and I told them when I went for the timber to watch out and if there was any more chipping to be careful and watch out.

Q. Mr. Evans, State Mine Inspector, what is your duty in the mine?

A. I am the timber man in 15.

Q. Looking after the safety of the entries and the mine in general?

A. In the mine in general.

Q. What do you know about the condition of this place previous to the morning of the accident?

A. I do not know anything about before that.

Q. Who put those props there?

A. I did not understand the question right; day before yesterday went into my usual work and the driver in the 15th east entry told me that the place between five and six room was falling in the entry; I went down and came to the place and I found it was breaking away on the right-hand side at the rib, I put up seven props all along the rib and it seemed to me that it was perfectly safe at that time. Mr. McKinnon came in and he sounded the roof and he said it was all right and it was.

Q. Then the next day?

A. The next day was the fall; it broke during the night along the coal at the rib and discharged the props and was down in the morning.

Q. When you came there the next morning, after Mr. McKinnon went out, did you sound the roof where the first fall was?

A. Not right then, but in about one-half hour afterwards.

Q. What called your attention to sound it then?

A. Some of the men said it had begun chipping off little pieces of slate and told me, Mr. Mayers, I believe there is something wrong, so I took my pick and sounded the roof and found that it was giving away; then I took my pick and dug two hitchings and got some timbers in.

Q. How thick was the pieces of rock that fell on the men?

A. About 18 inches thick.

Q. How long was it?

A. I do not know exactly; I never measured it.

Q. One of the jurors asked you if it was the same rock fell on the three men?

A. No, sir.

Q. The rock came down the same time on the three men, practically when it fell it was the same rock only it broke into pieces?

A. Yes, sir.

NICKOLAUS MAYER.

Lafayette Grim's testimony:

On yesterday morning as I went into my work to the entry, I drove the entry, me and Mr. Perretto, the man that was killed, I got in a little ahead of him and came to this fall; I sounded the top and it was still chipping ahead and I went through into the first room and on into the second room and on up to the end of the entry to see how the other places were; by this time Mr. Perretto had got there and we talked over the fall quite a while. Nobody came to clean the fall up and I

says to Mr. Perretto that this fall must have fell since the gas man was in or Mr. McKinnon would have sent men to clean it up before this; while we were talking Mr. McKinnon came in and called us out to help clean up the fall; we went out; I went on the east side and Mr. Perretto went on the west side and went to work at the fall and Louis Rons came with me, and Mr. Perretto had Barney Marchello; when I heard it chipping again I told Mr. Mayers to watch out for that rock was chipping over there; Mr. Mayers sounded it and went to digging his hichings and went back for his timber and he had not been gone long till this rock fell; it gave no other warning, and of course we made all efforts to get those men out that we could.

Q. Mr. Loeb, do you pass this place every day?

A. Yes, sir.

Q. Did you notice anything there before?

A. No, sir; it sounded perfectly safe all along.

Q. Mr. J. J. Heck, you pass this place in going to and from your work?

A. Yes, sir; on Tuesday, the day they timbered it, I went in.

Q. You considered that just as safe as any other part of the entry you were in?

A. Yes, sir.

Q. Mr. Cook, how long have you worked there?

A. Four years the first day of January.

Q. Mr. Anderson, do you consider these men were taking any more then the ordinary risk of working around places of this kind?

A. No, sir.

Q. Mr. Loeb, you did not consider it any more dangerous the work they were doing than the work you were doing?

A. No, sir; it was all under the same fall.

Q. You would not expose yourself had you known that it was dangerous?

A. No, sir.

Q. Mr. Anderson, these men that were killed, did they make any remarks about the place being unsafe?

A. No, sir; I do not think they did; we were quite busy trying to clean up the first fall.

Q. Mr. Mudd, were there just you four men at work there?

A. No, sir; there were six.

Q. Mr. Evans, did you sound the roof you were under?

A. Yes, sir; I sounded the roof I was under, but I did not go over to their side.

Q. Your partner that was killed, how long have you known him?

A. I have known him ever since he came here and have worked with him seven or eight months.

Q. What do you know about his being a careful man?

A. He was as careful a man as I ever saw.

L. GRIM.

Frank Mayer's testimony:

I was at work with my father as helper timbering; I was working with him at the time Mr. McKinnon came in the south entry and told us to come up and help clean up the fall in the 15th east entry; we went up and went to work and I believe I was working on the east side with Mr. Grim and Louis Rons; I was unloading a car of slate and heard Mr. McKinnon tell the boys on the other end to be careful, that it was slipping and in about ten minutes I heard the fall; we got around there as quick as possible and three men were covered up.

FRANK MAYER.

Henry Mayer's testimony:

I work in the south entry in mine 15; Mark Pearson came up and called at me; I asked him what he wanted and he said there were three men covered up by a fall; so I got my coat and bucket and started; I found that it was in the 15th east entry; I went up there and heard that there were three men under the fall and helped get them out.

Q. Mr. Loeb, do you pass that place in going to and from your place of work?

A. No, sir; it was on a different entry.

Q. Mr. Evans, were you acquainted with the parties?

A. I was acquainted with one of the parties.

Q. You know that he was a careful miner?

A. Yes, sir; the one I knew; the other I was unacquainted with.

HENRY G. MAYER.

Thomas Pearson's testimony:

I work in Mine 15; I was informed by my foreman that there had been an accident occurred in the 15th east entry; then I went to assist in getting these men out and assisted the parties that were there till all three men were found under the fall.

Q. Mr. J. J. Heck, I understand that you are the Gas Inspector?

A. No, sir; I am not at the present time.

Q. Well, then, you do not work at night in the mine?

A. No, sir; I work in the day time; I resigned my position as gas man last October and have been digging coal every since.

Q. Do you pass this entry to go to and from your work?

A. No, sir; I work in the 18th entry.

Q. Mr. Cook, what time was it in the morning?

A. I think some where about 9 o'clock; I did not have my watch and couldn't tell.

Q. Your work is in a different part of the mine from where this accident occurred?

A. Yes, sir; some four or five hundred feet farther south.

Q. Mr. Evans, were you acquainted with the unfortunate men?

A. I was acquainted with Mr. Perretto.

Q. How long have you been acquainted with him?

A. About five years; since he has been working at Mine 15.

Q. Was he a careful man or do you know anything about his carefulness?

A. Yes, sir; I have worked with Mr. Perretto and have always found him a careful man and a man that understood his business.

Q. He filled the capacity of a miner all the time you have known him?

A. Yes, sir.

T. W. PEARSON.

George Charon's testimony:

I worked in Mine 15 in the 18th west entry off of the south; Thomas Pearson came in there something after 9 o'clock and hollered to me and told me to come that there had an awful accident occurred in the 15th east entry; I ran up there as fast as I could get there, and found these men fast under the rock and helped to block it up so that we could get the men out.

Q. Mr. J. J. Heck, did you help get the men out?

A. Yes, sir.

Q. Mr. Evans, you don't know anything prior to the accident?

A. No, sir.

Q. Do you know the parties?

A. I know Mr. Perretto.

Q. How long have you known him?

A. I have seen the man around here, I guess, for about 10 years.

Q. What had been his occupation during the time you have known him?

A. He has been mining coal all the time.

Q. What do you know about him being a careful, practical miner?

A. Well, I know a great deal about him; I always found him to be a very careful man; he has helped do some very dangerous work.

Q. Do you think he would be a man that ought to realize danger?

A. Yes, sir.

Q. Do you know the other men?

A. I have known the men since they have been there, but as far as knowing anything about them I couldn't say; I have known them here at the mine.

Q. Do you consider Perretto careful and capable of discovering dangerous places?

A. Yes, sir; for I know he has worked with me in very dangerous places.

Q. Mr. Williams, when a bad place is found in the roof of the mine what is the general method taken by the miners to remedy a condition of this kind?

A. Well, in a fall of this kind you would have to run the risk to take part of this fall away in order to get timber to prop above, because you couldn't prop on the first fall and be safe; you might set a prop on the fall and there being a loose piece of rock above you want to lean a lot more away to set a prop; you might hit it with a hammer and the little tap of the hammer on the rock set on the fall would loosen the prop; there is where I say that I would rather clean up the first fall then to prop it; when you once disturb it, it is liable to break; when you set the prop up there you loosen it somewhere and it will fall.

GEO. CHARON.

Mr. McKinnon recalled:

Q. Mr. Williams, the two men that begun work in December, Charles Van Huyfel and Seraphim Koeketeart, when they begun work in December mining coal, and after performing company work for you, did you consider them competent miners?

A. Yes, sir.

Q. They gave good satisfaction in the rooms and also in company work?

A. Yes, sir; they gave good satisfaction in both.

Q. Mr. J. J. Heck, in selecting men to do the work you select those men that you think competent miners?

A. Yes, sir.

ABE McKINNON.

Ira Ballanrd's testimony:

The first I knew about the first fall the driver that drives in that entry told me to tell Mr. McKinnon that there was a fall in his entry;

that was the 15th east entry; so I went out and asked for Mr. McKinnon, if he was there, and some one said he was on the east side; I called Willie Cowans to tell him that there was a fall in the 15th east entry, and wanted some one to clean it up, and when I came out on my next trip Mr. McKinnon went in; he came out directly afterwards and went to the bottom; I do not know anything about the other fall; there were some boys came up the entry, stopped us, told us that there were three men under a fall; I stopped and went down where the fall was; I told these boys to go and tell Mr. McKinnon about the fall; I went up to the place where the three men were and found that two of them were dead and one was hollering.

Q. Mr. Loeb, what part of the work do you do in the mines?

A. I run the electric motor.

Q. You do not go very close to where this fall was?

A. No, sir.

Q. Mr. Cook, who was the driver in that entry?

A. Henry Porter.

IRA BALLARD.

State of Missouri, }
County of Bates. } ss.

At an inquisition taken at Rich Hill, in the county of Bates, on the 23rd day of March, 1900, before me, John R. White, a justice of the peace, and acting coroner of the county aforesaid, upon view of the bodies of Peter Perretto and Seraphim Koeketeart, there and then lying dead, was summoned Herman Loeb, H. G. Cook, W. J. Mudd, J. J. Heck, J. A. Anderson and N. W. Balfinch, jurors, good and lawful men, householders of township of Osage, in the county aforesaid, who, being sworn and charged diligently to inquire and true presentment make how and in what manner and by whom the said Peter Perretto and Seraphim Koeketeart came to their death, upon their oaths, do say:

We, the jury, summoned to view the dead bodies of Peter Perretto and Serephim Koeketeart and to inquire into the manner of the death of the said Peter Perretto and Serephim Koeketeart, and after being charged and sworn to declare of the deaths of the said parties, Peter Perretto and Serephim Koeketeart, on our oaths, find that said persons came to their death by the fall of slate from the roof of the entry known as the fifteenth east entry off of the south in Mine number *Fifteen of the Rich Hill Coal Mining Co.*, find, according to the evi-

dence, that the above named Peter Perretto and Seraphim Koeketart came to their death by an unavoidable accident which occurred in the presence of L. Grim, Louis Rous and Frank Mayer.

HERMAN LOEB, Foreman,
J. W. MUDD,
J. J. HECK,
H. G. COOK,
J. A. ANDERSON,
N. W. BALFINCH.

JOHN R. WHITE,

Justice of the peace, Osage township, Bates county, Missouri,
and acting coroner in the above inquest, this 23rd day of March, A.
D. 1900.

In witness whereof, as well the aforesaid coroner as the jurors
aforesaid, have to this inquisition put their names at the place and on
the day and year aforesaid.

JOHN R. WHITE,
Justice of the Peace and Acting Coroner.

LAFAYETTE COUNTY.

P. S. Smith (colored), a miner, employed by the Silver Creek Coal
Co. at Waverly, was killed by a fall of rock on the 27th day of Decem-
ber, 1899. Deceased left his own room to visit a fellow workman, and
while in conversation with his friend at the face of this other room
a rock fell on him killing him instantly, adding another victim to the
charge of reckless carelessness. Deceased was 20 years of age and sin-
gle. No inquest held.

LINN COUNTY.

Berta Bush, a miner, employed by the Marceline Coal Co. at Mar-
celine, was instantly killed May 18th, 1900, by slate falling on him.
Deceased was engaged in setting props at face of his room where three
breaks had occurred in the brushing, but no rock had fallen in the
brushing nor had any props been set to prevent it from falling until
the morning of the accident, when deceased was fixing to set some
props; he sounded the roof with his pick when it fell upon him and
snuffed the life out of him in an instant. Deceased was young, only
19 years of age at his death, but was considered a practical miner,
having been brought up in the mines under the care of his father, and
was well respected by his many acquaintances who greatly regret
his sudden and untimely death. The coroner, after examining a num-
ber of persons, decided not to hold an inquest, pronouncing it purely
accidental.

MACON COUNTY.

William Walker (colored), a miner, employed by the Kansas & Texas Coal Co. at Mine No. 61, near Bevier, was fatally injured January 9th, 1900, by a shot blowing through the pillar, bruising him about the head and body, from the effects of which he died on the morning of the 11th. Signals were given to deceased and he was also warned to go out to the entry while the shots were being fired in the adjoining room, but he was very slow and indifferent about it and finally when he did attempt to leave it was too late. Deceased was 45 years of age and single. No inquest held.

RAY COUNTY.

Harry Stebbins, a miner, employed at Pence & Calnen, Mine No. 6, near Richmond, was caught and seriously injured by a fall of rock October (can't get date), 1899. Deceased was at work in the face of his room, which is long-wall work, when he heard the rock crack above him, and anticipating danger he made a quick move to get out of the way, but was caught by a mass of rock that fell upon him. He sustained internal injuries from the effects of which he died five days later. The roof at this mine, like that of all the mines of Ray county, is good, and during the 8 years of my service as Mine Inspector of this State this is the first accident from fall of roof that we have had to put on record, and we believe that this boy who was only 18 years of age neglected to prop the face of his room. No inquest held.

VERNON COUNTY.

Willis Anderson (colored), a miner, employed by the Central Coal & Coke Co. at Mine No. 14, near Panama, was killed on the 9th day of April, 1900. Deceased had fired a shot at noon which knocked out two props, and it seems by the evidence that he went back after dinner to see what the shot had done; when he discovered the props had been knocked out he took hold of a pick to sound the roof, and while in the act of sounding it a large piece of the roof fell and caught him. He was taken out alive, but died soon after. Deceased was 52 years of age, married and had 3 children. No inquest held.

William Bell (colored), a driver, employed at the Vernon Coal Co. mine, near Panama, was killed August 21st, 1899, by a fall of slate. Deceased was making a turn with his mule at a parting on the west entry when a large piece of slate fell and caught him under it, crushing out his life in an instant. He was 18 years of age and single. Coroner's *rdict was accidental death.*

NON-FATAL ACCIDENTS.

BARTON COUNTY.

April 4, 1900—Wm. Smith was injured at Mine No. 3, Wear Coal Co., located at Vernon. Smith was injured by a fall of coal at the face of entry; leg badly bruised, but not broken.

April 14, 1900—John Kopel was injured at Mine No. 3, Wear Coal Co., near Vernon. Kopel was working off a shot at face of his room when coal and slate fell together and caught him; badly bruised him on shoulders and breast.

BATES COUNTY.

August 22, 1899—G. W. Wilkinson was injured at Mine No. 15 of the Rich Hill Coal Co. by a fall of slate. Wilkinson was working off a shot under a dangerous piece of roof and was warned to watch it, and while he knew that it was loose and realized his danger, yet he put off attending to it until it dropped and caught him, bruising shoulders and back quite severely.

December 30, 1899—John Ferry was seriously injured at Mine No. 20 of the Rich Hill Coal Co. by a fall of rock. Ferry was mining off a shot when a large rock fell from the roof and broke his leg, crushed his chest and bruised him considerably all over the body. The injured man was mending very well until he was taken down with pneumonia, fever from which he died on the 7th of January, 1900.

March 22, 1900—Chas. Van Huyfel was injured at Mine No. 15 of the Rich Hill Coal Co. Van Huyfel was engaged with others in cleaning off a fall of slate on the entry when another fall came down and caught three of the men under it; two were killed on the spot while Huyfel was crippled for life. A further notice of this accident will be found in notes on fatal accidents.

LAFAYETTE COUNTY.

September 18, 1899—John Stoll was injured by a fall of coal in Mine No. 2 of the Farmers' Coal Co., near Higginsville. Stoll was employed as a miner and was lying on his side undermining when the coal fell and caught him, breaking one of his legs and considerably bruising him otherwise.

January 3, 1900—Albert Holden was injured by a fall of coal and slate at the mine of Lewis & Fisher, near Mayview. Holden was undermining a piece of coal near a slip which was loose at each end. He

was warned of his danger, but being an inexperienced miner did not realize it nor did he give any heed to the warning and was caught under it. His thigh bone was broken in two places, and was hurt about the body a little.

MACON COUNTY.

May 15, 1900—Geo. J. Arnold was injured at Mine No. 61, Kansas & Texas Coal Co., by falling off top landing into hopper. Arnold was passing over hopper to get miner's check off pit-car and stepped on a piece of coal which caused his feet to slip off the board and fell into the hopper, bruising right thigh quite badly.

December 18, 1899—James Bess was injured by a fall of rock at Mine No. 61 of the Kansas & Texas Coal Co. Bess was loading a car when a slab of rock from the roof fell suddenly and caught him under it, breaking his leg and bruising him on the body.

April 16, 1900—John Davis was injured by a fall of rock at Mine No. 61, Kansas & Texas Coal Co. Davis was loading at the face of his room when a rock fell without giving any warning; the rock caught Davis, bruising him badly on the back and hip.

April 19, 1900—W. A. Howard was injured at Mine No. 61, Kansas & Texas Coal Co., by a fall of rock. Howard was employed as a miner and was engaged in setting his props under a piece of loose rock in his room. While getting his prop in shape to drive it tight, having jarred the rock, it fell on him, bruising his back and hip very severely.

October 26, 1899—Wm. Moore was injured at Mine No. 61, Kansas & Texas Coal Co., by a fall of slate. Moore was just turning off a room from the entry, and while in a stooping position cleaning up a fall a small piece of slate fell on him slightly injuring his back.

April 19, 1900—John H. Roberts was injured by the premature explosion of a shot at Mine No. 61, Kansas & Texas Coal Co. Roberts had set fire to the shot and was in the act of running away to a place of safety when the shot went off, pieces of coal striking him on legs and ankles, causing slight bruises.

March 13, 1900—Abe L. Summers was injured by a fall of rock at Mine No. 61, Kansas & Texas Coal Co. Summers was working in an entry, and while arranging to load out his loose coal at the face some loose rocks fell on him, bruising his hip and side.

November 22, 1899—Fred Thomas was injured by a fall of slate at Mine No. 61, Kansas and Texas Coal Co. Thomas was employed as a mule driver, and on going out with his trip some slate from the roof fell on him, crushing him against end of pit-car and bruising him very bad on left side, near heart, from which he suffered considerable pain.

November 22, 1899—S. Fredine was injured at Mine No. 61, Kansas & Texas Coal Co., by a fall of slate. Fredine was employed as a miner, and while at work in the face of his room behind a car loaded with rock a fall of slate dropped from the roof, struck him on the head and knocked him against the car, badly bruising and cutting his face; also bruised his body.

November 18, 1899—Lew Williams was injured at Mine No. 61, Kansas & Texas Coal Co., near Bevier, by a fall of rock. Williams was mining off a standing shot when a small piece of slate fell; his arm was caught between the slate and the bottom coal bench, breaking the bone in the forearm.

April 17, 1900—Samuel H. Wilson was injured at Mine No. 61, Kansas & Texas Coal Co., near Bever, by a pit-car. Wilson was employed as a mule driver and in coming out with a loaded trip a car jumped the track, tipped over and caught his foot between the bumper of the car and the ties in mine track, mashing and bruising his foot badly.

February 3, 1900—Lewis Jones was injured at Helmet Mining Co. mine, near Lingo, by a fall of slate. Jones was employed to clean up and retimber an old entry and while preparing to set more timber the roof, which was already loose, fell and caught him, bruising him badly.

PUTNAM COUNTY.

March 8, 1900—Henry Nobla was injured at Mine No. 2, Mendota Coal Co., near Mendota, by a fall of coal. Hoblas had made his fall ready and was wedging it down when it dropped suddenly and caught him, bruising his legs and body considerably.

May 4, 1900—Chas. Johnson was injured at Mine No. 8, Mendota Coal Co., by a fall of coal. Johnson was mining his fall when part of it fell on his leg and broke it between knee and ankle.

VERNON COUNTY.

April 16, 1899—Bert Rupert was injured at Mine No. 14, Central Coal & Coke Co., near Panama. Rupert was engaged in sinking an air-shaft and in letting down timbers the rope slipped, the timber fell to the bottom and struck him, breaking left arm and badly injuring his foot.

John Scott was injured in the Wise Bros.' mine, near Panama. Sometime in October, 1899, Scott was employed as a mule driver and in coming out with his loaded trip got off the track, knocked out a timber and was caught under some slate, sustaining serious injury combined with a broken leg and considerable bruises about the body.

TABLE V—Showing Accidents in Coal Mines by

ADAIR

Name of company or operator.	Name of injured person.	Date of acc't.		Occupation of person injured.	Age.	Single.
		Month.....	Year.....			
Rombauer Coal Co.....	James Behrens.....	Jan. 16	1900	Miner.....	30	..
C. B. Havens & Co.....	L. Peterson.....	Mch. 28	1900	".....	29	..
Total.....						

BATES

The Rich Hill Coal & Mining Co.	G. W. Wilkinson...	Aug. 22	1899	Miner.....	55	..
" " "	J. W. Ferry.....	Dec. 30	1899	".....	31	..
" " "	Peter Perretto.....	Mch. 22	1900	".....	42	..
" " "	Seraphim Koketart.	Mch. 22	1900	".....	32	1
" " "	Chas. Von Huyfel..	Mch. 22	1900	".....	27	1
Total.....					2	2

BARTON

The Wear Coal Co.....	Wm. Smith.....	Apr. 4	1900	Miner.....	49	..
" " "	John Kokel.....	Apr. 14	1900	".....	46	..
Totals.....						

LAFAYETTE

Farmers' Coal Co.....	John Stoll.....	Sept. 18	1899	Miner.....	26	1
Silver Creek Coal Co.....	F. Smith.....	Dec. 27	1899	".....	19	1
Lewis & Fisher.....	Albert Holden.....	Jan. 3	1900	".....	33	..
Totals.....					2	

LINN

Marceline Coal Co.....	Berta Bush.....	May 18	1900	Miner.....	19	1
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Counties for the Year Ending June 30, 1900.

COUNTY.

Married	No. of children	Non-fatal	Fatal	Insured?		Am't of insurance	Nature of the accident	Coroner's verdict
				Yes	No			
1	...	...	1	...	1	...	Fall of roof	No inquest
1	1	...	1	...	1	...	Fall of roof	Fault of deceased and working partner
2	1	...	2	...	2	...		

COUNTY.

1	5	1	...	...	1	...	Fall of roof	
1	3	1	...	1	...	\$1,000	" "	Unavoidable accident
1	3	...	1	...	1	...	" "	
...	...	...	1	...	1	...	Fall of roof, paralyzed from hips down	
3	11	2	3	1	4	1,000		

COUNTY.

1	...	1	...	...	1	...	Fall of coal	
1	...	1	...	...	1	...	Fall of roof	
2	...	2	...	...	2	...		

COUNTY.

...	...	1	1	...	Fall of coal	
1	3	1	1	...	Fall of roof	No inquest
1	3	2	1	...	3	...	" "	

COUNTY.

...	...	1	...	1	...	Fall of roof	Accidental
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ANNUAL REPORT OF THE

MACON

Name of company or operator.	Name of injured person.	Date of acc't.		Occupation of employe.	Age.	Single.
		Month.	Year.			
Kansas & Texas Coal Co.....	Wm. Moore.....	Oct. 26	1899	Miner.....	26	..
" " " ".....	L. Williams.....	Nov. 18	1899	" ".....	34	..
" " " ".....	Fred. Thomas.....	" 22	1899	Driver.....	16	1
" " " ".....	L. Fredino.....	" 22	1899	Miner.....	30	1
" " " ".....	James Bess.....	Dec. 18	1899	" ".....	24	1
" " " ".....	Wm. Walker.....	Jan. 9	1900	" ".....	45	1
The Helmet Mining Co.....	Lewis Jones.....	Feb. 3	1900	" ".....	52	..
Kansas & Texas Coal Co.....	A. L. Summers.....	Mch. 13	1900	" ".....	35	..
" " " ".....	John Davis.....	Apr. 16	1900	" ".....	28	1
" " " ".....	Sam'l H. Wilson.....	" 17	1900	Driver.....	23	..
" " " ".....	John H. Roberts.....	" 19	1900	Miner.....	32	1
" " " ".....	W. A. Howard.....	" 19	1900	" ".....	45	..
" " " ".....	Geo. J. Arnold.....	May 15	1900	Weighman.....	44	..
Totals.....					6	

PUTNAM

Mendota Coal Co.....	Henry Nobla.....	Mch. 8	1900	Miner.....	27	1
" " " ".....	Chas. Johnson.....	May 4	1900	" ".....	30	1
Totals.....					2	

RAY

Pence Bros. & Calnen.....	Harvey Stebbins....	Oct. 19	1899	Miner.....	18	1
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VERNON

Central Coal & Coke Co.....	Bert Rupert.....	Aug. 6	1899	Laborer.....	23	1
Vernon Coal Co.....	Wm. Bell.....	Aug. 21	1899	Driver.....	18	1
Wise Bros.....	John Scott.....	Oct. 19	1899	" ".....	22	1
Central Coal & Coke Co.....	Willis Anderson....	Apr. 9	1900	Miner.....	52	..
Totals.....					3	

COUNTY.

						Nature of Accident.	Coroner's verdict.
		Am't of insurance.		Insured?	No.....	Yes....	
No. of children...	Non-fatal.....	Fatal.....					
1	3	1	.....	1	.....		Fall of roof.....
1	1	1	.....	1	.....		" " .....
.....	1	1	.....	1	.....		" " .....
.....	1	1	.....	1	.....		" " .....
.....	1	1	.....	1	.....		" " .....
.....	1	1	.....	1	.....		Killed by a shot made in ad-joining room.....
w	2	1	.....	1	.....		Fall of roof.....
1	1	1	.....	1	.....		" " .....
.....	1	1	.....	1	.....		" " .....
.....	1	1	.....	1	.....		Mine car caught foot of driver
.....	1	1	.....	1	.....		Fall of coal.....
j	1	1	.....	1	.....		Fall of roof.....
1	2	1	1		Slipped from foot board over scales.....
lw	8	12	1	13	

OUNTY.

1	1	Fall of coal
1	1	" "
2	2	

COUNTY.

.....	1	1	Fall of roof.....
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COUNTY.

1	3	2	2	4	Fall of timber down shaft Fall of roof Got car off track Fall of roof	Accidental No inquest
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ADAIR COUNTY.

(Production, 181,577 tons.)

Adair county is still advancing to the front of the coal producing counties of the State by showing another large increase in her output during the year just closed. In the year 1891 this county ranked the 17th and was advanced to the 11th in rank in the year 1898 with an output of 62,000 tons, but during the year 1899 new mines were opened and she advanced to 8th in rank with an output of 105,000 tons, and in the present report she holds 7th place with an output of 181,577 tons of coal. We expect a steady increase in the output of coal from this county for years to come, as new mines will be opened out and the older ones steadily increase in their output.

There are two workable veins of coal underlying the northern part of Adair county and both seams are extensively mined. The upper seam crops out in the hills and mines are entered by drifts, while the lower vein is about 125 feet below and is reached by shafts. The upper vein will vary from 36 to 42 inches in thickness and the lower seam from 44 to 46 inches.

The Omaha, Kansas City & Eastern railroad is the only railroad running through this coal field at present. Its general direction is from east to west and the product of the mines find a ready market at Omaha and points west. Following is a statement as to the location, description and condition of each mine as found at dates of inspection:

DANFORTH POSTOFFICE.

C. B. Havens Coal Co.—H. T. Lemist, president and manager, and Geo. Evans, superintendent. Mine located a short distance east of Danforth, and has shipping connection by a spur switch with the Omaha, Kansas City & Eastern railroad. Shaft 50 feet deep and equipped with good machinery for hoisting, draining and ventilating. This mine was formerly owned by the Watson Coal Co., but was bought by the present operators in January of the present year, who have made considerable improvement in and around the mine, and have increased the output to double its original capacity. I made the first inspection of this mine during the past year on the 17th of August, 1899, and found it in very fair condition. The ventilation is furnished by a 10-foot fan with good results. The air current is divided at the bottom of the fan shaft to the east and west and travels around the workings in two separate currents, giving plenty of fresh air to every

working place. I made another inspection on the 17th of April and found the mine in excellent condition. I found on this visit that it had changed hands, and the new company had been at work cleaning up and timbering all the air courses and entries; a new escapement shaft was in course of construction, a part of the pit top had been remodeled, new houses built for use of miners; a large force was also put on in order to increase the output, and I expect to find this mine a great producer in the very near future. The coal is about 3 feet 9 inches in thickness and overlaid with a very fair roof, easily secured by timbering. The mine is operated on the double entry room and pillar plan and the coal is mined by shooting it off the solid. The pay for mining was 60 cents per ton during the past year for unscreened coal, and the mine is giving employment to about 75 men. The product is consumed at St. Paul, Omaha and points along the line of railroad.

NOVINGER POSTOFFICE.

Rombauer Coal Company.—Major R. G. Rombauer, superintendent and manager; Martin Rabbitt, foreman. Mine located one mile west of Novinger, and has shipping connections with the O. K. C. & E R. R. Shaft 45 feet deep and operated by steam power. Ventilation is produced by a 10-foot fan, and the mine is well ventilated. I made two inspections of the mine during the past year, namely, August 17 and April 17, and found it in excellent condition on both visits. The ventilation was above the requirements of the law; the safety appliances in good working order, air-courses had been cleaned and timbered, and were found wide and roomy. Entries were also found high, wide, clean, and well secured. The mine is perfectly dry and practically operated. Coal from 44 to 45 inches in thickness, worked on the double entry room and pillar plan; the coal is extracted by blasting it off the solid. It is overlaid with good slate roof, easily secured by timber. Price paid for mining during the past year was 60 cents per ton for run of mine coal. 75 and 85 men were employed respectively at dates of inspections, and 4 mules. The coal is consumed at Omaha and local towns along the line of the road.

John Parish operates a mine north of Novinger during the winter months to supply local demand.

FEGLEY POSTOFFICE.

Robert Besanko is operating a mine about 10 miles north of Kirksville along side Easel Creek. The coal is taken away in wagons, and consumed in the surrounding country.

Pat. McCale operates a mine in the same locality as the above,

and the coal is consumed in immediate surroundings.

F. J. Miller operates a mine near Fegley to supply the local trade in fall and winter.

Thos. Scott operates a mine in the same neighborhood during the fall and winter to supply the home demand.

D. C. Scott operates an extensive mine near Fegley. Shaft 50 feet deep. Horse power; ventilation is furnished by a small furnace at the side of the hoisting shaft. The coal varies from 3 feet 6 inches to 4 feet in thickness and is worked on the room and pillar plan. It is overlaid with an excellent slate roof next to the coal, which is about 10 inches thick, and above that there is a good cap rock; the coal is underlaid with fire-clay mining and is worked by under-mining, cutting and wedging it down, what is known in mining parlance as pick work. The product is hauled away from the mines in wagons and consumed in the surrounding country. Employment is given to 10 or 12 men in winter. 75 cents per ton is paid for mining the year around. This is a very extensive coal field, and productive mines could be easily operated if it had railroad facilities for shipping the coal to market, but located as it is several miles from shipping connection the output is limited to local demand.

STAHL POSTOFFICE.

American Fuel Company. Jeff. W. Bedford, manager; John Ward, superintendent. Mines located at Stahl, and has shipping connection with the O. K. C. & E. R. R. by a switch. This company operates two mines at this place, both of which are entered by drifts, and ventilation is produced by a furnace, which is located at mine No. 1. The air enters at the mouths of the drifts, travels around the workings in separate currents and unite at the furnace for its exit. I made two inspections of the mines during the past year; the first visit was made on the 16th of August, 1899; the ventilation at this date was found weak and sluggish in mine No. 1, owing to small and contracted airways, caused by faulty, irregular coal and soft roof. Drift No. 2 was found well ventilated and in very fair condition, and preparations were being made for the improvement of the air at mine No. 1. I made another inspection of these mines on the 18th of April, and found both mines connected by an under-ground communication and preparation were being made to take the coal from No. 1 out through drift No. 2, and abandon drift No. 1 altogether, except for an airway. The ventilation on this visit was better than on the previous one. I also discovered that a new air course was nearly through from an east entry to the 4th north, and another air shaft was to be sunk to shorten the route of

the current and furnish a fresher and stronger current. In the past two years the management of this mine has had to contend with a great deal of faulty coal, causing the roof to fall, thus contracting the aircourses and retarding speed of the ventilative volume, but every effort is made by the company to furnish the required amount of air in its mines and to keep them in good condition. The coal will vary from 36 to 44 inches in thickness, and is worked partly on the longwall and room and pillar plans, according to the condition of the roof. The coal is of good quality for all domestic and heating purposes, and will make steam readily, but I do not consider it as good a steam coal as that of the lower vein. It is taken to market over the O. K. C. & E. R. R., and consumed at Omaha and local towns along the line.

Chas. Maywalt is operating a drift mine on the same seam 3 miles northwest of Stahl to supply local demand in winter.

Spring Valley Coal Company. J. F. Stroup, superintendent. Mine located one-half mile east of Stahl, and has shipping connection with the O. K. C. & E. R. R. This is a drift opening and the mine is located half a mile from the railroad and the coal is hauled over a tramroad by mules. The ventilation is produced by a furnace with good results. Coal 3 feet thick and worked on both the longwall and room and pillar plans. 20 and 12 men were employed respectively at dates of inspection. The product is consumed at towns along the line.

GREEN CASTLE POSTOFFICE.

North Missouri Coal Co. A company under this name was organized last year, and commenced the opening of mines about 3 miles west of Stahl along the line of the O. K. C. & E. R. R., but the coal proved to be very irregular and faulty, and after spending considerable money the company was obliged to give up further effort on the upper vein. The company started to sink a shaft to the lower vein, and we are informed that they struck coal at a depth of 70 feet, and that some coal had been taken out, but as we have not visited it since, will give particulars in the next report. I will also be able to report more new mines in this county as several are now in contemplation.

AUDRAIN COUNTY.

Production, 43,530 tons.

Mining is being prosecuted at various points throughout Audrain County, but only at the mines of Farber, Martinsburg and Vandalia have the facilities to ship the product out of the county, the mines

in other sections of the county are, however, only operated to supply the home demand.

The county produced 43,530 tons of coal during the year just closed, which was sold at the mines for \$59,492.00, or an average of \$1.36 per ton. To produce that amount 6 mines were operated, and an average of 138 men employed. Following is a description of the most important mines:

FARBER POSTOFFICE.

Farber Coal Company. C. Peterson, superintendent. Mine located at Farber and connected with the C. & A. R. R. Shaft 104 feet deep; equipped with machinery for hoisting. I made my first inspection of this mine on the 21st of November and found it in excellent condition; the ventilation at that time was furnished by the aid of a fire basket hung in the air shaft and it was giving satisfaction, but on my second visit, April 13th, I found that a fan had been set to replace the fire basket, which was giving excellent results, furnishing double the amount of air required by law and also benefiting the sanitary condition of the mine. I also discovered that the shaft had been recurbed, the pit top remodeled, and the mine, in general, in good condition. Coal about 28 inches in thickness, but somewhat irregular. It is underlaid with a fire-clay mining, and overlaid with good slate roof easily secured with timber. It is worked on the long-wall plan, but the slate roof proved to be too soft to use the face track. From 20 to 25 men employed.

MARTINSBURG POSTOFFICE.

The Krieger Coal Company. David Davis, foreman. Mine located one-half mile east of Martinsburg, and has shipping connection with the Wabash R. R. Shaft 107 feet deep, and operated by machinery. Ventilation is produced by a small furnace with very good results. I made my first inspection of the mine on the 21st of November and found it in very fair condition, with about 20 men employed. I visited the mine again on the 14 of April, but found it idle. No inspection was made. Coal 30 inches thick and worked on the longwall plan. The product is consumed at local towns along the line.

The McGuire mine is located south of Martinsburg, and operated in fall and winter to supply local demand.

BENTON CITY POSTOFFICE.

Parris Carr is operating a mine about 4 miles south of Benton City. Shaft 20 feet deep; horse power. The coal is 42 inches thick and worked on the room and pillar plan; the coal is taken away from *mine* in wagons and consumed in the neighborhood.

VANDALIA POSTOFFICE.

Vandalia Coal Co. Wm. Bevan, superintendent. This company owns and is operating two mines at Vandalia, and both have shipping connections with the C. & A. R. R. Both mines have shaft openings, and machinery used for hoisting at each. Shaft No. 1 is 75 feet deep and the ventilation is furnished by a fan, which gives good results. I visited the mine on the 20th of November and found it in good condition. A new air course had been made on the west side of the south entry, which greatly improved the ventilation on that side. I also discovered on this visit that new works had been opened out on the north side, but as no connection had been made to cause the air to circulate the ventilation was found deficient in that part of the mine at date of visit. April 17th I made another inspection and found everything in a satisfactory condition. Coal 28 inches thick and worked on the longwall plan. The mine is dry, and the entries high, wide and clean, and practically operated. Ten chutes have been erected at the mine to coal engines and nearly all the output is consumed by the railroad company. Shaft No. 2 is 65 feet deep, and ventilated by a furnace with good results. The same coal seam is worked here as that at mine No. 1. It is underlaid with good fire-clay, which is taken out by the company and used in the manufacture of brick, the coal remaining temporarily for roof. The coal is about 28 inches in thickness, and worked on the longwall plan, there being a good slate roof over it, but the clay is mined on the room and pillar plan, a large amount of timber being required to keep the roof secure. All the coal produced is consumed at the mine in the manufacture of the clay into brick, locomotive blocks and other articles. Employment is given to 30 or 40 men, but the mine closes during the winter months.

The Standard Coal Company operates a mine at Vandalia during the winter months to supply the local demand. The same coal seam is worked at this mine as that at the other mines in that locality, and the same method of mining is practiced.

There are other mines operated at other points throughout the County on a small scale during the fall and winter to supply home consumption, all other particulars concerning these mines will be found in the statistical table of Audrain county.

BARTON COUNTY.

Production, 141,520 tons.

Barton county is the eighth coal producing county of the State, and is one of the few counties which show an increase in the output of coal during the year just closed. The county is nearly all underlaid with a good seam of coal, and mining is being carried on at a number of places in the county, but with one or two exceptions on a small scale. The covering over the coal being so shallow makes underground mining impractical in many localities, hence it is that the coal is largely taken out by stripping. The principal mines are located at Minden and Vernon, the coal is shipped to market over the K. C., Ft. S. & M. and the Mo. P. railway, which passes through the coal-field. Following is a description of the more important mines of the county:

BOSTON POSTOFFICE.

The following parties have been mining coal in the surroundings of Boston during the winter months to supply home demand: A. Y. Williams, Ben. Waters, Gabe Still and W. H. Still. The coal seam is very thin and the covering shallow; the coal is obtained by stripping.

LAMAR POSTOFFICE.

The coal seam in the surroundings of Lamar is thin, the covering shallow, and obtained by stripping. Names of parties who operated mines in that vicinity during the past year with thickness of coal and all other particulars can be found in the statistical table of Barton county.

LIBERAL POSTOFFICE.

A. F. Bailey is operating a mine on the land of J. Prosser. The coal is about two feet in thickness and is consumed in the vicinity.

Joe Travis & Son are operating a mine near Liberal. It is entered by a slope, and the coal is worked on the room and pillar plan. Mine only worked in winter to supply home trade.

John J. Prosser operates a mine on his own land during the fall and winter to supply local trade. The coal is about two feet thick and of very fine quality.

Yoke & Curless operates a mine at Liberal. The coal is two feet thick and worked on the room and pillar plan. It is taken away from the mine in wagons and shipped to market over the K. C., Ft. S. & M. R. R.

A Boyer is operating on the Walger land. Mine entered by a slope, and ventilated by a small furnace. Coal 26 inches thick and worked on the room and pillar plan. The product is shipped over the Mo. P. R. R.

Wm. Breinogle operates a drift mine on the Boulware land. Coal 26 inches thick worked on the room and pillar plan, and mining paid for at rate of one dollar per ton. The product is consumed at local towns along the line of the K. C., Ft. S. & M. R. R.

E. Stone operated a mine during the past year on the Campbell land. The coal was consumed in the surrounding country.

There are several other parties who have been operating mines on a small scale in the neighborhood of Liberal during the past year; further information of these mines can be found in the statistical table of this county.

MINDEN MINES POSTOFFICE.

The coal in the surroundings of Minden is about 34 inches thick and of very fine quality, but the shallowness of the covering makes underground mining difficult. The coal is obtained at a large number of mines by stripping. The following parties have been mining during the past fall and winter, and shipping the product to market over the K. C., Ft. S. & M. and Mo. P. railway: Morgan Lee, F. D. Leslie, W. B. Leslie, John Finell, Sandford Mercantile Company, Beck Coal Company, H. C. Chancellor, George Claunch, F. R. Gray and Wm. Beasley.

Swiggert & Son sunk a shaft during the past year about a mile north of Minden, striking coal at 32 feet from the surface. The hoisting is done by horse power, and the mine operates in the winter season only. The product is consumed in the vicinity of the mine.

Josiah Short. Mine located west of Minden. Slope opening and ventilation furnished by a furnace. Coal 3 feet in thickness and worked on the room and pillar plan; from 4 to 6 men employed. The product is taken to market over the K. C., Ft. S. & M. R. R.

Hall & Fletcher Coal Co. Mine located one mile northwest of Minden. Shipping connection with the Mo. P. R. R. by a spur switch. Mine entered by a slope, and ventilated by a furnace. This is a new mine opened out during the past year on the land belonging to the Western Coal Company. The Missouri Pacific Railway takes all of the product. The coal is about 32 inches in thickness, and overlaid with good roof. It is worked on the room and pillar plan. Employment is given to about 25 men.

PITTSBURG, KANSAS.

Wear Coal Co. Archie B. Kirkwood, superintendent; John Kirkwood, foreman. Mine located at Vernon Station, and has shipping facilities with the K. C., Ft. S. & M. R. R. Shaft 45 feet deep, and operated by steam power. Ventilation is produced by a 10-foot fan, and the mine fairly well ventilated. Two inspections were made during the year. The first on October 20, 1899, when the ventilation, as well as the general condition of the mine, was found better than on my previous inspection. The fan was forcing at this date, and the air was split at the bottom of the downcast to the east and west, where it was split again to the north and south, passing over an air crossing and made to travel around the workings in four separate currents. This is a very systematic and practical method of ventilating when the air-courses are kept wide and clean. Unfortunately the airways in this mine had been neglected for some time previous by parties who had it leased, and it had not fully recovered yet from the neglect; but I found new air-courses in course of construction from the 3rd north entry off the east to the 4th north entry off of the west side which will, when completed, greatly improve the ventilation. Other efforts were being made to improve the air by setting and repairing doors and cleaning airways. I made the second inspection on the 25th day of May when the fan was making 100 revolutions per minute, and passing 14,210 cubic feet of air around the workings in same time. I found the fan exhausting at date of this visit and was giving more general satisfaction than on several former visits. The only entry where a deficiency in the air was discovered was in the 4th north entry on the east side, at which point an air-course had fallen in. The air was weak on the 6th north off of the west side, as well as in the main west entry; this weakness was caused by the failure to set two doors to carry the air to the faces. The covering over the coal is very shallow, and the mine is troubled considerably with water, as every heavy fall in the mine reaches to the surface allowing the water to enter, and in addition seriously interferes with the free passage of the air current, but at the same time the company is doing all it can to comply with the letter of the law, and every defect so far discovered may be considered unavoidable. All the machinery and safety appliances are kept in good order, and great care is exercised in providing for the safety of the miner. Coal 34 inches thick and worked on the room and pillar plan. It is extracted by shooting off the solid. An average of 125 men employed. The coal is shipped to points north and northwest.

Western Coal Co. Major R. M. McDowell, general manager; Archie Craig, general superintendent; William Waddell, foreman. Mine located near Minden and has a shipping connection with the Mo. P. R. R. by a spur switch extending from the main track. Shaft 60 feet deep and equipped with all the latest improved machinery. This is a new mine; the shaft was sunk during the past year, and the work of opening it out has been considerably hampered by labor troubles, but when completely opened up will prove to be the model mine of the State. The escape and hoisting shafts were both sunk at the same time and both are 8 by 13 feet in the clear, timbered with lumber six inches thick from top to bottom. The hoisting is done by a pair of 160 horse power Litchfield engines, 16 by 30-inch cylinders working on first motion with auxiliary steam break. Steam is supplied by two 26-foot 6-inch flue boilers, 72 inches in diameter, and 22 feet long. The fittings between the engine and boilers are so arranged that the result of expansion and contraction is confined to the threads on the pipes, so that if a break occurs it must take place where it can be the most easily and economically repaired. The Tipple rests on head gear or tower posts, and the screening arrangements are resting on a solid rock foundation. The pit head or tower upright posts are each of one solid piece 54 feet long. The coal is dumped from a self-dumping cage, the construction of the cages being the invention of Mr. Craig, the superintendent of the mine, and built to meet the requirements of the mine and district. Automatic door hooks are used on the dumping arrangements, which are also the fruit of the inventive mind of this young mine manager. The coal is weighed in a hopper, scale after which it is delivered to a shaker screen, which screen grades the coal into four different grades or sizes, and different tracks are provided for each grade. The shaker screen works on a pendulum motion at an elevation of 17 degrees, and the same operated by an independent engine of 10-horse power. The frame work of this screen is so constructed as to take the shock off of the tower top buildings and weigh office. The weigh house and automatic appliance for the speedy, convenient and economical weighing of the coal are models of neatness and usefulness. In addition to the hoisting plant, an electric plant is also provided of 150 K. W. Generator driven by a 250-horse power high speed engine. This power is used for driving a motor underground in hauling the coal from the face of the work to the bottom of hoisting shaft, and for furnishing light on top and below. The engine house, boiler house and dynamo buildings are built of brick, and so constructed as to meet every want and supply every

convenience. The escapement shaft is divided into two compartments, one of which for the air passage way proper is 8 by 8 feet, and the stairway 5 by 8 feet. The stairway is constructed in sections 7 feet long with steps two feet wide set on an angle of about 33 degrees, making the descent and ascent comparatively easy; a two-inch rod is fixed running down the centre of the shaft to be used as a hand hold, and a double guard against accidents. Each step is plated with a steel plate 3-16 inch thick and 6 inches wide; the object in making everything so handy and safe is to have a convenient way for the employes to enter or leave the mine, as the escape shaft will be the general traveling way for all employed. The fan house is located 300 feet from main shaft, and the fan itself is set 22 feet back from the air shaft, so as to furnish the largest possible protection to the fan in case of an explosion. The fan is 16 feet in diameter (the largest in the state) and is operated by a 12 by 21-inch cylinder horizontal engine connected direct to the fan shaft. To avoid heighth, and help the efficiency of the fan, a pit five feet deep was dug, and a substantial stone wall built from the bottom of the same to a heighth of 13 feet, on the top of which the fan will rest and the fan house built. The fan house will be so constructed as to allow the fan to force or exhaust as the requirements of the mine may be. A machine shop is also provided for at this mine, 30 feet wide by 60 feet long, equipped with lathes, power punch, cutter, drill press, emery wheels, grindstone, saws, two forges, each furnished with a No. 1 blower and foundry arrangements for brass and other castings. All the pit-cars are made in this shop; the axles, woodwork and iron for the same are prepared here, as well as the repair of all kinds of machinery. I made a thorough inspection of this mine on the 25th of May and found the work confined to driving entries preparatory to opening it up. Connection had been made between the two shafts and a temporary furnace was used at this date to furnish the ventilation until the fan is built. The underground plan contemplates entries turned at right angles from main entries. The mine will be operated on the double entry room and pillar plan, and at a distance of 65 feet from the shaft bottom on both sides of the shaft an overcast has been erected, which will give each side of the mine two separate and distinct currents of air, making in all four currents. All entries and aircourses are constructed with a view, should it become necessary, of ventilating each separately. The mine as equipped and planned, contemplates a production of 2,000 tons daily. Four tracks for loading and a passing track are provided, together with yard room and other facilities of ample dimensions to make good

the claim of handling the product mentioned. A large number of houses have been built here for the accommodation and home of the miners. The houses are all new, built on the cottage pattern and containing to suit families, 2, 3 and 4 rooms; each house is provided for in the kitchen, with excellent artesian well water. Comparing the neatness, the homelike appearance and the comforts supplied in these houses, with the dismal and indifferent houses furnished miners most generally, we feel compelled to commend this company for its generous consideration of the miner in this particular.

The inspector enjoys a real pleasure, when he discovers a large company like this one, evidencing its consideration for the feelings, the comforts and happiness of its miners, as is substantially attested by the neat homes, the accommodations and conveniences associated with them that have been constructed for the miners employed by this company. The model mine it has opened up, also points to a most liberal endeavor to secure the greatest possible safety and freedom from accident. It is a worthy subject, and furnishes all necessary excuse for our extended remarks concerning it.

Mr. Craig, the superintendent and promotor of this mine, is comparatively a young man. His elevation from the use of the pick in the mine to his present exalted position, he has won by personal effort, faithful application to business and his genius. He is worthy of a wide field for the full exercise of his inventive talents, and we shall not be surprised if opportunity along the lines of his calling is afforded him, to find him reach the topmost round in the ladder of fame.

NEWPORT POSTOFFICE.

The surface coal seam that is mined in the surroundings of Boston and Lamar extends to the vicinity of Newport, where several small mines are operated during the cold season to supply the home demand. The following parties have been operating mines on a small scale during the year: D. D. Strambo, W. J. Cook, Chas. Burkett, Samuel James, D. S. Wymer and W. B. Divine. The coal is about 16 inches thick and the mines are entered by drifts. The product is consumed in the immediate vicinity.

BATES COUNTY.

Production, 363,577 tons.

Bates county for this year ranks third on the list of coal producing counties with an output of 363,577 tons. The product would have been very much larger but for the mining troubles during the fall of the year growing out of a suspension of work.

In mining this output 463 miners were employed, and 1672 kegs of powder consumed which cost the miners \$33,247.50. There were 38 mines operated, of which 2 are shaft openings, 13 slopes, 8 drifts and 15 strip pits. In all underground work the pillar and room system prevails, and the coal extracted by shooting it off of the solid. All of the product is transported to market over the Mo. P. R'y, which passes through the center of the coal field. Two inspections were made of the mines of Bates county last year. Following will be found a description of the mines and the condition in which they were found respectively:

AMORET POSTOFFICE.

The only mining worthy of note done in the surroundings of Amoret was prosecuted under the management of Mr. H. J. Winters who took out considerable coal from strip pits, hauled it away in wagons, loaded it on cars at Amoret, and shipped to market over the P. & G. R. R. The coal in this vicinity and all over this part of Bates county is about 34 inches thick, but the covering is so shallow over the coal that underground mining is impractical.

FOSTER POSTOFFICE.

The entire immediate surroundings of Foster is underlaid by coal, and from ten to fifteen different parties operated mines in its vicinity during the past year. The covering over the coal being shallow makes underground mining impractical as well as unprofitable. The method of mining in use here is by first removing the overlying material between the surface and the coal, and then taking out the coal; this is called stripping or strip-pit. The coal is then hauled in wagons from the pit to the railroad switches, loaded on cars and shipped to market over the Mo. P. R. R. When the covering is found too thick to be profitable, then small drifts are driven at the bottom of the strip-pits, but as a rule, these are soon flooded with water and abandoned. Considerable prospecting was done in this part of the county during the past year by the Rich Hill Coal Company, as a lower seam of coal is supposed to exist below, but we have not been informed with what results.

RICH HILL POSTOFFICE.

Rich Hill is the great coal center of the southwest. It is located near the southwest line of Bates county, and near the center of the coal belt that runs through Bates and Vernon counties, and is surrounded by large and extensive mines for a radius of six miles, and while the coal is taken out in great quantities every year, yet the mines are very productive and will continue so for years to come.

The thickness of the coal will vary from 3 to 6 feet, of very fine quality for all purposes, but more especially steam; it finds a ready market wherever it has been used.

Bruce & Ress Coal Co. Mine located about four miles northwest of Rich Hill and has shipping connection with the Mo. P. R. R. Mine entered by a drift and ventilated by a fan. Coal about 40 inches thick and worked on the room and pillar plan. Mining is paid for at the rate of 55 cents per ton for uncreened coal. Employment is given to about 25 men.

Wm. Lowder. Mine located about four miles northwest of Rich Hill, and has shipping connection with the Mo. P. R. R. Mine entered by a slope, and ventilated by a furnace. The coal is of good thickness, but the operations are now confined to the drawing of pillars of coal left in by former parties and will soon be abandoned.

Robert Pearson. Mine located about four miles northwest of Rich Hill, and connected with the Mo. P. R. R. by a spur switch. The mine is entered by a slope, and ventilated by a furnace. I made two inspections of the mine during the past year and found it in very fair condition at each visit with the ventilation satisfactory. The coal varies from 4 to 5 feet in thickness, and is worked on the room and pillar plan; the price paid for mining is the same as that paid at the mines of the Rich Hill Coal Company. The mine being located between two old abandoned slopes is making considerable water, but it is easily handled by pumps. About 40 men employed. The coal is sold to the Rich Hill Coal Company.

The Wise Bros. Coal Company are operating a mine about two miles north of Rich Hill near old mine No. 4. The mine is entered by drift from the bottom of a strip pit, and ventilation furnished by a furnace. The coal is of good thickness, and is overlaid by a good slate roof, but its being located in such close proximity to an abandoned mine the water is coming in too strong for the profitable operation of the mine. Twelve men employed at date of inspection.

Stover & McMullier are operating a mine about 3 miles north of Rich Hill. Slope opening, and ventilation produced by a furnace. Coal 4 feet thick and worked on room and pillar plan. Six men employed.

Vernon Coal Co. Jas. Wise, superintendent, and Sidney Haynes, foreman. Mine located two miles south of Rich Hill, and has shipping connection with the Mo. P. R. R. by a spur switch. Shaft 108 feet deep and equipped with machinery for hoisting. This is a new mine, opened out during the past year, and at date of my inspection, May 21st, I found it well developed, but no permanent system of ventilation

had been adopted, as the air shaft had not been sunk; the fan which furnishes the ventilation was set on the top of the air chamber which was petitioned off at one end of hoisting shaft. An air shaft is to be sunk at once, and when completed, the fan will be removed and set on top of it, at which time a permanent system of ventilation will be adopted. Connection had also been made to parts of old workings in an abandoned slope, which was giving off a great amount of black damp and foul air, causing great annoyance to the miners for a few days. Coal about 4 feet thick and worked on the room and pillar plan. Fifty cents per ton is paid for mining all coal over 3 feet nine inches in thickness, and fifty-five cents for all unscreened coal under that height. Sixty men employed at date of inspection.

A. Turtelott. Mine located near Rich Hill. Slope opening and ventilation furnished by a small furnace. Coal 4 feet thick and worked on the room and pillar plan. The product is consumed in the surrounding country.

Rich Hill Coal & Mining Co. Major R. M. McDowell, general manager, and W. B. Williams, general superintendent. This company owns and is operating a large number of mines in the surroundings of Rich Hill, and are great factors in the coal production of the State. Its mines are located in Bates and Vernon counties, and have shipping connections with the Mo. P. R. R. All of its mines are operated on the double entry room and pillar plan, and the coal is extracted by blasting it off the solid. Fans are used at each mine to furnish the ventilation with very acceptable results; all doors are made of double lumber, set properly and at the right place, and a trapper kept at each door. The airways are high, wide and roomy, and the general condition of the mines very satisfactory, as the laws are strictly observed and obeyed, and mines practically operated.

Mine No. 15. Alex. McKinnon, foreman. Mine located $1\frac{1}{2}$ miles south of Rich Hill, and has shipping connection with the Mo. P. R. R. by a switch. Shaft 106 feet deep, and operated by first-class machinery; the ventilation is furnished by a 15-foot ventilating fan with satisfactory results. I made the first inspection of this mine during the past year, October 18, 1899, and found it in excellent condition. The ventilative volume of air is conducted around the workings in five separate currents, two currents are conducted into the straight east and ventilates the east and north sides, returning to the fan shaft over an air crossing, while three currents travel to the south side and ventilates as many different sections. The ventilation as well as general condition of the mine was entirely satisfactory. I noticed that preparations were being made at this date to put in an electric haulage in

order to reduce the cost of taking out the coal. On the 24th of May I made another careful and thorough inspection of the mine, and found it in good condition with the ventilation up to the requirements of the law; in fact, I found a strong current traveling in every part of the mine, but noticed one of the currents on the south side was overloaded with work, and the air in the other two currents found very impure and smoky owing to the long distance the air had to travel from the bottom of the downcast before reaching any of the working places. The air, in traveling over this long route, absorbed so much of the impurities generated in a mine as to make it foul and a suggestion was made to the superintendent to sink another air shaft at the face of the south entry to be used as a downcast, thus taking the air direct to the miners. To this suggestion Mr. Williams promptly replied that he already had the matter under consideration and would have the arrangements made at once to have it sunk; since my visit to the mine this office has been informed that the shaft is sunk and has proved a decided benefit in purifying the air. We have also been notified that another air shaft has been sunk at the face of the straight east entry which will be used as a downcast, thus insuring plenty of fresh air during the life of the mine. I also noticed on this visit that preparations for the use of electricity had been completed, and the system of haulage changed from that of mules to an electric motor, the employment of which dispensed with the services of 15 mules and as many mule drivers. The results of the electric haulage on the south side of the mine proved so satisfactory that a motor has been put on the northside. The cost of the change from mule power to that of electricity has been very great, as it embraced not only the cost of a new plant, but necessitated the removal of the old track, the reduction of the grade together with new and heavier rails. This extra cost, however, is more than compensated for by great economy of time in delivering the coal to the shaft bottom compared with the old method. The motor runs from the shaft to the inside lay or double parting, a distance of one mile, in six minutes, carrying 30 cars to the trip each way. Indeed I believe it can pull 50 cars per trip every 6 minutes as easily as the 30. The scarcity of cars in the mine was the cause of such short trips as it takes so many pit cars at pit bottom inside parting and in motion to keep it going. The power for the new plant and the engine house adjoins the old engine house, and is conveniently arranged, the wires leading from it to the mine are provided with resistance coils and lightning arresters. The line wire is connected to the trolley wire at the shaft bottom. The trolley wire sets 7 inches to the

side of the track and at an elevation of 5 feet from the rail; the entries are lighted by electric light their entire length. The new plant erected at this mine, with its already fine equipment, ranks it now one of the finest in the Union. Coal will vary from three feet and a half to five feet in thickness, worked on the double entry room and pillar plan; 50 cents per ton is paid for mining unscreened coal when the seam is three feet nine inches and over in thickness, and 55 cents for all coal under that height. Gasmen are employed to examine all parts of the mine before the miners are allowed to enter. Shot fires are also employed to fire all shots after the employees are all out of the mine, thus securing the safety of the employees in case of an explosion from the use of powder. There were about 250 men and boys employed at each date of inspection.

Mine No. 20. James Price, foreman. Mine located 6 miles northwest of Rich Hill, and has shipping connection with the Mo. P. R. R. Shaft 85 feet deep and operated by first-class machinery for hoisting. Ventilation is furnished by a 12-foot ventilating fan which is delivering three times as much air into the mine as required, and which is well taken care of and conducted around the working. I made the first inspection of this mine on the 19th of October, 1899, and found it in excellent condition, with the ventilation good and all the safety appliance in good repair. On the 23rd of May I made another inspection and found everything very satisfactory; coal will vary from 3 to 4 feet in thickness, and is worked on the double entry room and pillar plan. The same prices for mining is paid here as that at other mines in the surroundings of Rich Hill. Employment is given to 80 men.

WORLAND POSTOFFICE.

Henry Washburn. Mine located about one mile east of Worland. Mine entered by a slope and ventilated by a small furnace. Coal 2 feet 10 inches thick, and worked on the room and pillar plan. The product is taken from the mine in wagons, loaded on cars and shipped over the Mo. P. R. R. to Kansas City and other points.

J. C. Rankin is operating a mine on the west side of Worland. Slope opening and ventilation furnished by a small furnace. Coal 34 inches thick, and worked on the room and pillar plan. The product is taken away in wagons, loaded on cars, and shipped over the Mo. P. R. R.

Hough Bros. is operating a mine in the same locality under the same conditions.

Stephens Bros. operates a mine near Worland during the fall and winter, and ship the coal to market over the Mo. P. R. R.

There are several other parties taking out coal in the surroundings of Worland during cold weather and shipped to other points for use. Names of all these parties, the output of the mines with all other information will be found in the statistical table of Bates county.

BOONE COUNTY.

Production, 19,179 tons.

Coal is mined in nearly every township in Boone county, but on a limited scale, the Columbia Coal Company only having railroad shipping facilities. All the other mines throughout the county are operated only during the fall and winter to satisfy home consumption. Following is a description of some of the mines with remarks concerning localities where productive mines would be operated if shipping facilities could be obtained.

COLUMBIA POSTOFFICE.

Blackpost Coal Co. Jas. Hubbard, foreman. Mine located about 5 miles northwest of Columbia on the gravel road, and the coal is hauled from the mine in wagons to Columbia where it is consumed. Shaft 120 feet deep, and operated by horse power. Ventilation is furnished by a furnace with very fair results. Coal 42 inches thick and worked on the room and pillar plan, and overlaid by a good slate roof. 75 cents per ton is paid for mining, and from 6 to 10 men employed.

Carter Bros. Coal Co. E. Hubbard, foreman. Mine located about 4 miles northwest of Columbia along side of the gravel road. Shaft 80 feet deep, using horse power for hoisting. Ventilation is furnished by furnace with very fair results. Coal 42 inches thick and worked on the room and pillar plan; 75 cents per ton paid for mining. The product is taken away in wagons to Columbia, where it is consumed. Twelve men employed.

Columbia Coal Co. Mine located at Henry Station and has shipping connection with the Columbia branch of the Wabash R. R. Shaft 112 feet deep, equipped with machinery for hoisting. Ventilation is produced by a fire basket located at foot of air shaft with very poor results. This mine has been idle for a considerable time during the past four years and suffered great damage thereby. The airways closed up and great falls and caves covered all the entries, and at last visit made to it, I found men at work trying to get the air to circulate through the mine, but with very little success, and should not be surprised if the mine is abandoned; what coal remains unworked

will have to be taken out by sinking a new shaft. The coal is about 40 inches in thickness and of very good quality for domestic and steam purposes, but the roof is of a very friable nature and hard to keep up.

Scott Gordon. Mine located one mile east of Columbia. Shaft 50 feet deep, hoisting by horse. Ventilation is furnished by a furnace with fair results. Coal 28 inches in thickness and worked on the room and pillar plan; 75 cents per ton is paid for mining. The coal is taken away in wagons and is consumed in the surrounding country.

W. B. Prather is operating a mine 4 miles northwest of Columbia. Drift opening, coal consumed in the surrounding country.

I. Gray operates a drift mine in the same locality during the fall and winter to supply local demand.

HARRISBURG POSTOFFICE.

Several parties are taking out coal in the surroundings of Harrisburg during the fall and winter months to supply home consumption. The same seam of coal as that so extensively mined in Macon and Randolph counties extends into Boone and Howard counties, and is worked at several places. This vein crops out in creek bottoms and low places in its full thickness and is taken out by stripping. The coal in this locality measures from $3\frac{1}{2}$ to 4 feet in thickness, and there is no doubt that it underlies a large portion of Boone county, and will remain in the ground until capital and railroad facilities furnish a market. Names of all the parties who mined coal during the past year, with their output and other information, will be found in the statistical table of Boone county in this report.

RUCKER POSTOFFICE.

H. T. Buckler. Mine located at Rucker. Drift opening and ventilated by a furnace. Coal 46 inches thick and worked on the room and pillar plan. Coal used in the locality.

J. H. White. Mine located at Rucker. Drift opening. Coal 46 inches thick. Mine only operated in fall and winter, and the product is consumed in the vicinity.

There are several mines operated throughout the county on a small scale which we had not the time to visit, and as their output is small, and they only employ one or two men at a mine, they do not come under the mining law regulating mine inspection.

CALDWELL COUNTY.

Production, 26,000 tons.

HAMILTON POSTOFFICE.

Caldwell Coal Co. E. B. Hayden, president and manager, Wm. Toney, foreman. Mine located two miles east of Hamilton, and has shipping connection with the H. & St. Joe R. R. Shaft 507 feet deep; operated by steam power. Ventilation is furnished by a 10-foot ventilating fan with very good results. I made two inspections of the mine during the past year. First inspection was made on the 23rd of August, 1899, and found the ventilation satisfactory. I tested the volume of air at the bottom of the downcast, and found 20,350 cubic feet passing, this was divided into 3 separate currents which was ventilating as many different parts of the mine, and furnishing plenty of air to every place. I noticed the aircourse leading from the first west entry on the south side to the fan shaft had been cleaned and timbered, and a new ladder built in the escape shaft as an available way for the men to come out in case of an accident in hoisting shaft. The pit bottom had been retimbered, entries brushed and bottom taken up, thus making more height. Two new ropes had been put on to replace the old ones, and one of the cages had been repaired and remodeled. I made another inspection on the 1st of May, and found it in fair condition with the ventilation up to the demands of the law, and the safety appliances in good order. I also noticed that a new cage had been made since my former visit. Coal 18 inches thick and worked on the longwall plan. Prices paid for mining are at the rate of \$1.12½ per ton in winter and \$1.00 in summer. The coal at this mine is of extra good quality for all purposes, especially that of steam. It has better body and is therefore more lasting and will go further than any other coal in the State. From 50 to 75 men employed.

KINGSTON POSTOFFICE.

Kingston Coal Co. John Stewart, superintendent. Mine located one mile north of Kingston and has shipping connection with the Kingston branch. Shaft 248 feet deep, equipped with very good machinery for hoisting. The ventilation is produced at present by a steam jet, but a fan is to be set shortly. This mine was closed down by the Inspector in the spring of the year 1896, for failure to comply with that section of the law that provides for escape shafts to be

sunk as an avenue of escape for the employes in case of a fire or any other accident to hoisting shaft. The mine remained closed until the present year when new parties took hold of the property, sunk an escapement shaft, took the water out of the mine, and are now operating it. I visited the mine on the 23rd of August, 1899, and noticed that the escape shaft was sunk through the coal, and 6 men were working in the mine driving towards the escape to make connections, which at that date was about 90 feet apart. I made another inspection of the mine on the 1st of May and found it in good condition. I found plenty of air traveling around the working face, with all other requirements of the law fully complied with. Coal will vary from 6 to 30 inches in thickness, as it runs very irregular and faulty. It is underlaid by fine fire-clay mining, easily mined, and the roof is good and easily secured with timber. Fifteen men employed, and prices are paid for mining according to the thickness of the coal. It is of very fine quality, and takes the market readily.

CALLAWAY COUNTY.

Production, 15,120 tons.

The principal mines in Callaway county are located in the surroundings of Fulton, and are operated to supply local demand. The only mine in the county having shipping facilities is operated by the Fulton Fire Brick Manufacturing Company, and located southwest of Fulton.

FULTON POSTOFFICE.

Wm. Castle operates a mine near Fulton; drift opening; coal 26 inches thick, and worked on the longwall plan. Mine only operated in fall and winter, and the product consumed in the vicinity.

John Harris. Mine located southeast of Fulton; shaft 45 feet deep, operated by horse power; ventilation is furnished by a furnace. The coal is 30 inches thick, and worked on the longwall plan. Price paid for mining at rate of 95 cents per ton clean coal; from six to ten men employed. The product is taken away from the mine in wagons and is consumed at Fulton and the surrounding country.

J. W. Simmons is operating the Carbon Valley Mine, which is worked on the same method as the other mines in same locality to supply home trade.

Jas. Smith. Mine located southwest of Fulton; drift opening, and ventilation is furnished by a furnace. Coal 26 inches thick, and worked on the longwall plan. Employment is given to 10 men. The coal is taken away from the mine in wagons and hauled to Fulton, where it is consumed, the greatest portion to supply State institutions.

Fulton Fire Brick and Manufacturing Co. L. V. Nichols, superintendent; H. Harris, foreman. Mine located about two miles south of Fulton, and connected with the Mexico and Cedar City branch of the C. & A. R. R. Shaft 100 feet deep; operated by machinery for hoisting. Ventilation is furnished by a fan, which forces a large amount of air into the mine, but very little of it is made to pass around the working faces owing to falls and small airways; practically speaking, and judging by the conditions, the air is expected to ventilate the mine by traveling both ways on the one road, as no air course is kept open for the returns. I visited the mine on the 22d of November and found it in very bad condition, both in regard to air and its safety. A clay mine is operated 30 feet below the coal; this occasions great squeezes and falls in the mine; then the roof over the coal being of a soft friable nature causes it to fall and cave all over the mine; this closes up the airways so that the required or a sufficient amount of air cannot pass. Instructions were given to improve the quantity of air at once. I also found the shaft in a deplorable condition; the curbing had rotted, broke and bulged out in the shaft so that the cages would not pass up and down without sticking every now and then; to get them loose they had to be bobbed up and down several times to get through, making it very dangerous for the employes to pass up and down, to and from their work. The squeeze from the clay mine below had thrown the shaft on a twist, and the whole concern, pit top and all, had settled. Instructions were also given to the company to retimber the shaft at once, and make it safe for the men to travel through. Coal 28 inches thick, and worked on the longwall plan; 87½ cents per ton is paid for mining unscreened coal. Employment is given to about 35 men in clay and coal. The company consumes nearly all the coal in manufacturing the clay into brick and other articles.

John Marsonkopf. Mine entered by a drift, and ventilated by a furnace; operated during fall and winter to supply home trade.

John G. King is operating a mine about 1½ miles from Fulton, and hauling the coal in wagons to consumers in the surrounding country.

CARROLL COUNTY.

Production, 1,575 tons.

While Carroll county is nearly all underlaid with the coal measure formations, very little mining thus far has been done here. There are several parties operating mines in the surroundings of Carrollton, Hale, Little Compton and Wakenda, but only in a limited way to supply home demand. The coal varies from 18 to 22 inches in thickness,

and most of the mining is done by stripping. Wilson Scott is operating a shaft near Carrollton which is 20 feet deep, and worked on the longwall plan. James Whitehead is operating a mine at Hale, which is entered by a slope, and is worked on the longwall plan. All the other mines are strip pits, and further information will be found in the table for this county. This seam is a continuation of that so extensively mined in Ray county, and can be found anywhere throughout the county in low places, but so far has not been developed under the high hills.

CASS COUNTY.

Production, 2,745 tons.

CREIGHTON POSTOFFICE.

Creighton Coal Co. Geo. Meidinger, manager. Mine located at Creighton, and has shipping connection with the K. C., Ft. S. & M. R. R. Shaft 156 feet deep, and operated by machinery. Ventilation is furnished by a fan, and the mine is fairly well ventilated. The mine is situated about half a mile from the track, and a tramroad has been built from the railroad to the mine. I made an inspection on the 2nd of November, 1899, and found the ventilation very satisfactory, but the mine otherwise in poor condition and very impractically operated. The single entry system is practiced, which is in direct opposition to the law, and instruction were given to comply fully with the requirements of the law, otherwise the mine would be stopped. While this mine has been opened up for over five years, yet very little work is done in it, and not until this last fiscal year had the company an escapement shaft sunk. Coal 30 inches thick, and worked on the room and pillar plan, and extracted by shooting off the solid. Sixty cents per ton is paid for mining unscreened coal. Employment is given to 15 men and boys.

CEDAR COUNTY.

Production, 1,095 tons.

Cedar county contains only a small area of the coal measure formation, the coal-bearing rocks being confined to the western portion of the county. The coal is found in local deposits in the hills, and the mines are entered by drifts and slopes. It varies in thickness from 24 to 30 inches; is worked on the room and pillar plan, and one dollar per ton is paid for mining. The output of the mines is very small, as they are only operated a few months in winter, and the product is consumed at home.

FILLEY POSTOFFICE.

J. H. Young is operating a mine near Filley on a different seam of coal from that worked in other parts of the county, as the coal is over three feet in thickness. The mine is entered by drift, and worked on the room and pillar plan. Coal used in vicinity.

Another mine is operated in the same locality, on the land of Mrs. Dial. The product is consumed in the neighborhood.

ELDARADO SPRINGS POSTOFFICE.

C. W. Shroeder, E. W. Reynolds and Ed Beebe have been operating mines in the surroundings of Eldorado Springs during the past year. The coal was taken out by stripping, and consumed in the vicinity.

JERICO POSTOFFICE.

Names of parties operating mines in the surroundings of Jerico, with output of coal and other information, will be found in table of Cedar county in this report.

CHARITON COUNTY.

Production, 2,940 tons.

The mines that have been operated in this county during the past year are worked only during fall and winter to supply home consumption. The same seams of coal runs under a portion of this county as that which is so extensively mined in Randolph county, and has been found at a depth of 150 feet in the neighborhood of Salisbury; here the coal proved to be irregular, faulty, and the roof soft and friable; after spending a large amount of money in sinking a shaft to develop the coal it had to be abandoned. There are several parties operating mines on the upper or surface seams in different parts of the county, but only in a limited way to supply local trade. Local mines can be found operating in the localities of Brunswick, Indian Grove, Keytesville, New Comer and Salisbury. The coal seams worked at all these mines is only 18 inches thick. Mr. Henry Wachter, however, operates a mine near Salisbury where the coal is $3\frac{1}{2}$ feet thick. The mine is entered by a vertical shaft, and hoisting is done by horse power. The product is consumed in the immediate vicinity.

CLAY COUNTY.

Production, 12,800 tons.

MISSOURI CITY POSTOFFICE.

Missouri City Coal Co. Mine located at Missouri City, and has shipping connection with the Wabash R. R. Shaft 165 feet deep, equipped with good machinery for hoisting. Ventilation is produced by a 10-foot fan with very acceptable results. Made the first inspection of the mine on the 4th of October, 1899, and, as usual, found that it had changed hands and had been badly neglected. The roadways were found in bad condition, and the ventilation very unsatisfactory for the want of doors; there was plenty of air in the mine, but it was largely lost by leakage before the face of the workings was reached. Instructions were given to set doors on entries and properly conduct the air around the workings. The hoisting ropes were also found in poor condition, and were condemned, and the company further instructed to replace them with new ropes at once. I made another inspection on the 9th of March, and found the mine in better condition. New doors had been set on entries, and the ventilation was good all over the mine. The old hoisting ropes had been replaced by new ones. Coal 20 inches thick, and worked on the longwall plan; 95 cents per ton paid for mining. This is the only mine in the county, and it is a very good mine, practically opened out and operated, but it seems that nobody can operate it profitably and successfully.

DADE COUNTY.

Production, 2,350 tons.

Coal mines have been opened and worked in Dade county for a great number of years, but on a small scale, and worked only during the fall and winter to supply local demand. The coal is found in deposits in the hill tops, and the mines are entered by drifts and slopes. It will average about 32 inches in thickness, but runs irregular; it is underlaid with fine fire-clay mining and has a good roof over it. The mines are located 12 miles away from any railroad, at a place called Sylvania, and the product is taken away in wagons and consumed at different points throughout the county.

GRUNDY COUNTY.

Production, 42,371. tons.

TRENTON POSTOFFICE.

Grundy County Coal Co. Robt. Aladise, superintendent; mine located one mile southeast of Trenton, and has shipping connection with the Chicago, Rock Island & Pacific Railroad. Shaft 170 feet deep, equipped with first-class machinery for hoisting. The ventilation is furnished by a 10-foot ventilating fan set on top of the air shaft, forcing air into the mine. I made the first inspection of this mine on the 15th of August, 1899, and found the ventilation good all over the mine; tests of the air were taken at two places. The ventilative volume of air is divided at the bottom of the downcast to the east and west, the current going west is divided again into two splits at the first north entry, and another current circulates around the east side, and after passing an overcast it unites with the other current at the second north and returns to the upcast. I found 10,395 cubic feet per minute passing to the west side, and 7,800 cubic feet per minute going to the east, and this volume was circulating around the workings in three currents, giving very satisfactory results. The cages were in a rickety condition, without catches or covers, and instructions were given to put both on at once. I made another inspection on the 2nd of May and found the mine in very good condition, with the ventilation very satisfactory. The entries were dry and clean, and in better condition than on any former inspection. New cages had been built and put in to replace the old ones with covers and safety catches attached; the machinery, ropes and all the safety appliances were found in first-class condition. Coal 18 inches thick, and worked on the longwall plan. Pay \$1 per ton for mining. There were 50 and 135 men employed respectively at dates of inspection. The product of the mine is all consumed by the railroad company and home trade.

GALT POSTOFFICE.

Medicine Valley Coal Co. Mine located at Galt; shaft 210 feet deep, and operated by steam power. Coal 18 inches thick, and worked on the longwall plan. The coal runs irregular, and is underlaid with a hard fire-clay mining, making it difficult to excavate it, and adding materially to the operating expenses of the mine. Very little has been done during the past year.

HENRY COUNTY.

Production, 129,902 tons.

Henry county ranks 9th on the list of the coal-producing counties of the State with an output of 129,902 tons of coal for the past year. There were 39 mines operated throughout the county, and a description, with location of each mine, is as follows:

BROWNINGTON POSTOFFICE.

Cooper Creek Coal Co. Mine located two miles south of Brownington, and has shipping connection with the Blair R. R.; shaft 20 feet deep, operated by horse power. Coal three feet thick, and worked on the double entry room and pillar plan. Ventilation is furnished by a furnace, with satisfactory results. Employment is given to 30 men in winter and 15 in summer; 90 cents per ton is paid for mining; coal consumed by the railroad company.

John Thompson & Co. Mine located about half way between Brownington and Deepwater, and connected with the Blair railroad. Shaft 58 feet deep, and operated by machinery; ventilation is furnished by a fan, which is giving very fair results. Coal 38 inches thick, and worked on the room and pillar plan. Employment is given to 40 men in winter and 15 in summer; 90 cents per ton is paid for mining. The coal is of good quality, and is consumed at local towns along the line of road.

CLINTON POSTOFFICE.

Jordan Coal and Coke Co. M. Sheldon, manager. Mine located at North Station, 5 miles south of Clinton, and has shipping connection with the K. C., Ft. S. & M. R. R. by a spur switch. Shaft 55 feet deep; hoisting by horse power. The coal in the surroundings of North Station is found only in pockets, and is very irregular. At date of my last visit to this mine I found all the work confined to pulling pillars. We are informed that the mine has since been abandoned, and another mine opened out in close proximity to it. Coal 30 inches thick, and worked on the double entry room and pillar plan. Pay 90 cents per ton for mining. From 20 to 30 men employed.

John P. Watkins. Mine located southeast of Clinton; shaft 31 feet deep; hoisting by horse power. Ventilation is produced by a small furnace. Coal two feet thick, and worked on the pillar and room plan. The coal is taken away from the mine in wagons and hauled to Clinton, *here it is consumed.*

The Stockton Mine is located about three miles south of Clinton, and operated during the fall and winter to supply home demand. Mine entered through a vertical shaft 30 feet deep, and hoisting is done by a horse. The coal is consumed at Clinton and vicinity.

W. C. Evans is operating the Daley Mine. This is a shaft 25 feet deep, operated by horse power. The mine is located three miles south of Clinton, and the coal is taken away in wagons and consumed in the surrounding country. Thickness of coal and mode of working is the same as that of other mines in this locality.

Wm. England. Mine located southeast of Clinton. Drift opening. Coal 30 inches thick, and worked on the room and pillar plan. Mine only operated during the fall and winter. Product consumed in the vicinity.

Tebo Coal Co. John Bowen, superintendent. Mine located four miles northeast of Clinton, and has shipping connection with the M., K. & T. R. R. Mine entered by a slope, and ventilation furnished by a furnace. Coal 28 inches thick, and worked on the longwall plan. The covering over the coal here is rather shallow for this system of mining, as every break goes to the surface, thus letting in a large amount of water, which not only adds to the operating expenses of the mine but annoying as well. Employment is given to 25 hands in summer and winter. Coal all consumed by the railroad company.

DEEPWATER POSTOFFICE.

W. S. Dickey Clay and Mining Co. Sam. Smith, foreman. Mine located at Deepwater. Slope opening, and the coal is taken out by machinery. This is a new mine opened out during the past year, and at date of inspection had 25 men at work. Ventilation is furnished by a furnace with very satisfactory results, as the mine is well ventilated and practically opened out. Coal 32 inches thick, and worked on the double entry room and pillar plan. Prices paid for mining are 85 cents per ton in winter and 75 cents in summer. The product is all consumed by the company in the manufacturing of tiles and other articles.

Wm. Rees, Jr. Mine located about three miles southeast of Deepwater on the opposite side of Cooper Creek. The mine is entered by a slope and ventilated by a furnace. Coal 34 inches thick, and worked on the double entry room and pillar plan. It is hauled away from the mine in wagons, loaded on cars at Eaton switch, and shipped to market over the K. C., Ft. S. & M. R. R.

Wm. Rees, Sr. Mine located four miles southeast of Deepwater and connected with the Bailey road. Shaft 40 feet deep; hoisting by

horse power. Ventilation is furnished by a furnace, and the mine was found very well provided with good air at both inspections. Coal 34 inches thick, and worked on the double entry room and pillar plan; 90 cents per ton paid for mining in winter and 80 cents in summer; 15 men employed.

Smith Coal Co. J. W. Smith, manager. Mine located southeast of Deepwater. Shaft 36 feet deep, and hoisting done by horse power. Ventilation is furnished by a furnace with good results. Coal 32 inches thick, and worked on the room and pillar plan; 90 cents per ton paid for mining; 10 men employed in winter and five in summer.

Mrs. J. W. Hursts. Mine located on Cooper Creek, four miles southeast of Deepwater. Shaft 60 feet deep; hoisting by a horse, and ventilated by a furnace. Thickness of coal, method of mining and price paid for working is the same as that at other mines in this neighborhood. The coal is taken away from the mine in wagons, loaded on cars at Eaton switch and shipped over the K. C., Ft. S. & M. R. R.

Pharis Coal Co. Mine located in the Brush on the other side of Cooper Creek. Shaft 60 feet deep; operated by horse power, and ventilated by a furnace. Thickness of coal, method of mining, and all other conditions are the same at this mine as that of others in the same locality.

W. T. Meranda. Mine located south of Deepwater, entered by a slope and ventilated by a furnace; 6 men employed during the winter, and \$1 per ton paid for mining.

John Hurst is operating a mine in the Brush on the same seam, and under same condition as the above mentioned mines; employing a few men in fall and winter to supply winter trade.

LEWIS STATION POSTOFFICE.

Co-operative Coal Co. Mine located at Lewis Station, and has shipping connection with the M., K. & T. R. R. by a spur switch. Shaft 75 feet deep, and equipped with machinery for hoisting. Ventilation is furnished by an 8-foot fan, and the mine well provided for in this respect. I made two inspections of the mine during the past year and found it in good condition at each visit. Airways had been cleaned and made higher; new wheel roads have been made, and the mine is now in good condition. Coal 30 inches thick, and worked on the longwall plan; 70 cents per ton is paid for mining and 30 men employed. The product is taken to Sedalia and other towns along the road.

D. P. Pigg & Co. This mine is located about 1½ miles northeast of Lewis Station, and about half a mile north of the railroad. Mine

tered by a drift and ventilated by a furnace. This mine has been in operation for over three years, but the company cleaned it up during the past year, and built a tramroad from the mine to the track to secure shipping facilities over the M., K. & T. R. R. Coal 30 inches thick, and worked on the longwall plan. Employment will be given to 25 men, and 70 cents per ton paid for mining.

GARLAND POSTOFFICE.

S. B. Price, John Owens and L. P. Young are operating mines on a small scale in the surroundings of Garland during the fall and winter months to supply home demand.

MONTROSE POSTOFFICE.

The following persons operated mines in the surroundings of Montrose during last fall and winter: David Clark, Gerhard Dahlenagun, F. P. Wilson, W. B. Johnson, J. B. Jones, Chas. Eugenian, Joseph Tyree, John Teeman, J. C. Dodds, William Lindemare and Wm. Langley. The above are all operating strip mines, and working the same seam of coal, which is about 18 inches in thickness, and of very good quality. The product of these mines is consumed in the neighborhood.

WINDSOR POSTOFFICE.

W. E. Hughes operates a mine two miles south of Windsor on the C. C. Beedy land. Shaft 25 feet deep; hoisting by a horse. Coal four feet six inches thick, and worked on the room and pillar plan. This is one of the many local coal deposits that runs through Henry county. The writer developed and opened out mines in the surroundings of Windsor 32 years ago, and is confident that there are large coal deposits yet undiscovered in that locality. This could be made a productive mine, but located as it is, two miles from a railroad, the output is confined to local trade.

L. W. Beaman operates a mine on the Miller land; shaft 35 feet deep, and operated by horse power. Coal five feet thick, and worked on the room and pillar plan. This is also an isolated coal deposit, extending under quite a large area, and could be made a productive mine if it had shipping facilities, but located six miles from the railroad the output is limited to local demand. Five men are employed in winter and two in summer; 75 cents per ton is paid for mining. The coal is taken away in wagons and consumed at Windsor and its surroundings.

C. W. Field operates a mine on the Chappell land. Coal $3\frac{1}{2}$ feet thick, obtained by stripping and consumed in surrounding country.

There are a great many other mines operated in the surrounding

of Calhoun, Lucas, Piper, Sparrow, Urich and other places, but as they are all small mines and running during the cold weather only we had not the time or desire to visit them; all further information concerning same will be found in the table of Henry county.

JACKSON COUNTY.

Production, 20,900 tons.

Brush Creek Coal Co. M. Holden, manager. This is the only mine in the county. It is located two miles southeast of the city limits of Kansas City, near Brush creek, and has shipping connection with the K. C. & S. R. R. The shaft is being sunk to the lower veins, which is 400 feet below the surface, but the seam worked is 80 feet above or 320 feet to the landing. The mine is equipped with first-class machinery; the engine's cylinders are 20x32 inches, connected direct to a 7½-foot driver, working on first motion; three large boilers have been erected to generate the steam power. Shaft is 7x14 feet in the clear, divided into cageways by partition. Ventilation is furnished by a 10-foot ventilating fan, which is giving good results. I made the first inspection of this mine during the past year on the 21st of August, 1899, and found the ventilation good all over the mine. All the work was confined to the west side at date of this visit, and the ventilative current was passing every working place strong and fresh. On the 29th of December I visited the mine again, and found it in good condition, with the ventilation satisfactory. I also noticed that two new hoisting ropes had been put on to replace old ones worn out. On the 9th of March I visited the mine again, and found it in excellent condition, with the ventilation above the requirements of the law in every part of the mine. I tested the ventilative volume at each inspection and invariably found the quantity double that required by the law. I found men working on the east side at date of last visit as well as on the west side. This being a gaseous mine, every precaution is required to keep the mine safe, and I am pleased to state that not since the commencement of operation here has it been so successfully operated or free from explosions as during the past year. I also discovered on my last visit that men were at work at the face of the south entry boring with a diamond hand drill to test the lower vein, and we are informed that preparations are now being made to clean up the shaft and start operations on the lower run of coal, and abandon the upper vein, or the one now worked. Coal 18 inches thick, and worked on the longwall plan, using the movable face track. It is underlaid by fire-clay mining, which is very hard, and is overlaid by a hard slate

roof, which is an excellent top, and well adapted for the longwall method; it is easily secured with timber if properly attended to. The coal is of excellent quality, and finds a ready market and good price at Kansas City; 55, 65 and 60 men found employed respectively at dates of inspection; \$1.12½ cents per ton paid for mining during last winter, and \$1 in summer.

JOHNSON COUNTY.

Production, 8,455 tons.

KNOB NOSTER POSTOFFICE.

Thos. Boyd & Son. Mine located half mile west of Knob Noster, and has shipping connection with the Mo. P. R. R. by a spur switch; shaft 40 feet deep, and operated by steam power; ventilation is furnished by a furnace, which is giving very fair result. Coal 40 inches thick and worked on the room and pillar plan. Coal nearly all consumed by the railroad company.

DUNKSBURG POSTOFFICE.

Isaac Hedgecock. Mine located at Dunksburg; coal 28 inches thick; only operated in winter for local trade.

Frank Faulkner, Fred. Bobbit, Richard Park, Sylvester Strickland and James Fletcher operated mines near Dunksburg last winter to supply local demand.

MONTSERRAT POSTOFFICE.

The Barrowman Mine is located at Bristle Ridge. It has a slope opening and ventilated by a furnace. Coal 28 inches thick, and worked on the room and pillar plan. The product is taken away in wagons and consumed in surrounding country.

D. A. Bullock. Mine located at Bristle Ridge. It is entered by a drift and ventilated by a furnace. Coal two feet thick, and worked on the room and pillar plan. Mine only operated during the fall and winter. The product is taken away from the mine in wagons, loaded on cars at Montserrat and shipped over Mo. P. R. R. to Sedalia.

S. E. Hanna & Co. Mine located north of Montserrat. Shaft 40 feet deep, and operated by steam power. Coal three feet six inches thick, and worked on the room and pillar plan. This mine could be made a very productive one if it had shipping facilities, but situated as it is, some four miles from the railroad, its output is confined to local trade.

P. D. Fitch has opened out a new mine near Carbon Hill on the same seam of coal as the original mines were opened on, and while

the coal was of good thickness, and easily mined, it was considered of very inferior quality, and the mines were abandoned before one-third of the coal was worked out.

P. Lamb, E. Hardin and J. H. Christiffor are operating mines at Bristle Ridge during the fall and winter to supply local consumption.

WARRENSBURG POSTOFFICE.

Smith & Johnson Coal Co. Mine located near Warrensburg, and operated only during cold weather to supply home trade.

M. B. Meiley, Mary Northrup and Moses McDaniel are operating mines in the surroundings of Warrensburg during the fall and winter. The coal at these mines is about 26 inches in thickness, and is consumed at Warrensburg and in the vicinity of the mines.

LAFAYETTE COUNTY.

Production, 377,892 tons.

Lafayette county is not only one of the oldest coal-producing counties in the State, but one of the largest producers. For eight years she ranked third in the procession of coal-producing counties; but for the years 1894, 1895, 1898 and 1900 she has stood next to the largest producers. Although the principal coal seam worked within her borders is small as compared with other coal seams of the State, yet the nature of the roof over the coal and the clay mining under the coal, taken in connection with the quality of the coal, its economic mining and short haul to market, form such a combination of good things in its favor, that the operators find no difficulty in competing most successfully with the large seams of coal in other sections of the State. Such advantages, with her numerous mines, many of which are splendidly equipped and equally as well managed will continue to keep her in the forefront of our coal-producing counties.

The Lexington Coal Company has purchased a very large tract of land in the vicinity of Lexington, and already opened out new and extensive mines, and we expect to find the output of this county considerably increased in the next report (barring labor troubles). The Chicago & Alton and Missouri Pacific Railways passing through her coal field furnish good shipping facilities for the product. During the past year 46 mines were operated, and an average of 915 miners employed. Following is a description, location and condition of her principal mines:

ALMA POSTOFFICE.

Henry Dieckhoff. Mine located near Alma; shaft 30 feet deep; horse power. Coal 16 inches thick. Mine operated in fall and winter, and the product used at home.

M. W. Summers operates a mine near Alma in the fall and winter to supply local consumption. The mine is entered by a drift, and ventilated by a furnace. The coal is of same thickness, and worked on same method as that of other mines in this county.

BATES CITY POSTOFFICE.

Thos. Perry operates a mine on his farm near Bates City. Mine entered by a drift, and operated in fall and winter to supply the local demand.

CONCORDIA POSTOFFICE.

Reuben Green operated a mine last winter on the land of Ed Bartels. Mine entered by a slope, and operated during the winter to supply home trade.

Henry Frerking. Mine located west of Concordia. Slope opening; coal 18 inches thick, and worked on the longwall plan. Coal consumed in the immediate surroundings of the mine.

The Rust Bros. operated the Hendrix mine during the past year. Mine entered by a slope, and only worked a few months in winter to supply home trade.

A. F. Kresse. Mine located west of Concordia. Shaft 20 feet deep; horse power. Coal 18 inches thick, and worked on the longwall plan. This is the largest mine in its locality, and could be made a productive mine, but located several miles from the railroad, the output confined to local demand.

Henry Bartels operates a mine on the Parker land. Slope opening, and ventilation furnished by a furnace. Coal 18 inches thick, and worked on the longwall plan. It is taken away from the mine in wagons, and consumed in the neighborhood.

CORDER POSTOFFICE.

W. H. Bell. Mine located one mile south of Corder. Shaft 25 feet deep; hoisting by horse power. Mine operated in fall and winter, and coal used in the surrounding country.

J. H. DeBolt operates a mine on his own land two miles southwest of Corder. The coal consumed in the surrounding country.

W. P. Morgan operates a mine near Corder in fall and winter to supply local trade,

Corder Coal Co. Wm. Balew, superintendent. Mine located about a mile west of Corder, and has shipping connection with the Chicago & Alton Railroad by a spur switch. Shaft 72 feet deep, and operated by steam power. The ventilation is furnished by a 10-foot fan, which is giving very satisfactory results. I made an inspection of the mine on the 10th of October, 1899, and found it in good condition, with the ventilation very fair all over the mine, but the cages were found in a rickety condition and unsafe for the carriage of men up and down the shaft. Instructions were given to the company to have them made safe at once. The hoisting ropes were also found in poor condition; they were condemned and ordered to be replaced by new ropes. On this visit the mine was ventilated by a furnace and the coal hoisted by a horse power apparatus, but on my next visit to the mine, May the 15th, I found all of the old equipment torn down and machinery erected in its stead. The old cupola built on top and used as a furnace to ventilate the mine was also torn away and a ventilating fan set in its place, all of which has greatly improved the condition of the mine, as well as to increase its output. An underground communication is kept open between this mine and old mine No. 1, and used as an avenue of escape in case of an accident to hoisting shaft. Coal 18 inches thick, and worked on the longwall plan, with the movable face track in use; 95 cents per ton is paid for mining. About 60 men employed. Coal consumed at Kansas City.

Diamond Coal Co. Mine located at Corder. Shaft 56 feet deep; hoisting by horse power. The ventilation is furnished by a furnace with excellent results. I inspected the mine on the 9th of October, and found it in fine condition. This is a new mine, and practically opened out, the main entry running south and the cross entries east and west. The rock has been taken down on all the roadways, and the entries are high, wide, dry and clean, with iron track all through the mine. May 15th I made another inspection and found the mine in good condition, and the ventilation very satisfactory. Coal 18 inches thick and worked on the longwall plan with the movable face track in use. Coal is shipped over the Chicago & Alton R. R., and marketed at Kansas City and local towns. About 25 men employed, paying 95 cents per ton for mining.

Black Diamond Coal Co. Mine located east of Corder. Shaft 45 feet deep; horse power. This is a new mine; the shaft was sunk and equipped during the past year, and while it had no shipping connection considerable coal was hauled from it in wagons, loaded on cars at Corder, and shipped to market over Chicago & Alton R. R. This is the

same coal seam as that mined at other mines in this section, and the same method of working is practiced.

Klondyke Coal Co. Mine located north of Corder. Shaft 20 feet deep; hoisting by a horse. Coal 18 inches thick, and worked on the longwall plan. Coal taken away from the mine in wagons and consumed at Corder and surroundings.

S. F. Geisendorfer operates a mine southeast of Corder during fall and winter to supply local trade.

Salt Fork Coal Co. Henry W. Lease, superintendent. Mine located half mile east of Corder, and has shipping connection with the Chicago & Alton R. R. Shaft 45 feet deep; hoisting by a horse. I made inspection of this mine on the 9th of October, 1899, and found a deficiency in the ventilation on the east side; the mine at this date was ventilated by the aid of a furnace, which was not adequate, as it failed to ventilate the mine properly. The mine is very wet in places, and the air has to pass over stagnant water, making it heavy and sluggish; the furnace also refused to act properly, for the smoke from it would back up and mix with the air that was conducted to the working places of the miners. The company finally put in a fan, which gives entire satisfaction. I visited the mine again on the 15th of May, but found it idle on account of a break in the machinery; hence no inspection was made. Coal 18 inches thick, and worked on the longwall plan, using the movable face track. A foot of slate comes down with the coal, which is used to build pack walls along the roadways to secure the roof, as no props are used; 40 and 30 men at work respectively at dates of inspection; mining was paid for at the rate of 95 cents per ton.

GREENTON POSTOFFICE.

Harry St. Clair. Mine located at Greenton; shaft 34 feet deep; hoisting by a horse. Mine only operated in winter to supply local trade.

HIGGINSVILLE POSTOFFICE.

Bonanza Coal Co. Wm. Brandaw, superintendent. Mine located two miles east of Higginsville; shaft 70 feet deep, and operated by horse power. Ventilation is produced by the aid of a furnace, with very fair results. The ventilative volume of air passes down the air shaft and travels to the face of the south entry, where it is divided to the east and west, and made to travel along the face of the workings, and to unite again at the face of the north entry; thence back to furnace and out. Coal 18 inches thick, and worked on the longwall plan, using the movable face track; 95 cents per ton is paid for mining;

40 men employed. Coal is taken to market over the Chicago & Alton railway and consumed at Kansas City.

Farmers' Coal Co. This company is operating two mines near Higginsville, and both on the Rocky Branch. It has shipping connection with the Chicago & Alton and Missouri Pacific railways. Mine No. 2 is a shaft 36 feet deep, operated by a horse. Ventilation is produced by a furnace, with splendid results. I inspected the mine on the 12th of October, 1899, and found it in good condition, with the ventilation satisfactory. An underground connection was in course of construction between this mine and No. 3, and as soon as both mines are connected will be working the same coal face. I visited the mine again on the 16th of May, but found it idle, and no one at work; no inspection was made. Thickness of coal, mode of mining and other conditions are the same at this as that of other mines in this locality, and the same price paid for mining; 35 men employed.

Mine No. 3 is located nearly a mile southwest of No. 2. Shaft 25 feet deep; equipped with machinery for hoisting. I inspected the mine on the 12th of October, 1899, and found it in good condition. The mine was ventilated by the aid of a furnace at this date, but the company contemplated putting in a fan at once. Electric machines had been put in to do the undermining in place of picks. Machinery had also been erected to hoist the product in place of horse power; a new pit top had been built, and practically the mine looked new. An underground connection was driven towards No. 2, which was to be through in a few weeks, making both mines practically one mine with two openings. I visited it again on the 16th of May, but found it idle; hence no inspection was made. Coal 18 inches thick and worked on the longwall plan and using the movable face track; 50 men at work, and 95 cents per ton paid for mining. This coal is of very fine quality and finds a ready market and good price at Kansas City.

Higginsville Consolidated Farmers' Coal Co. G. W. Stealey, superintendent. This company owns and is operating five mines in the surroundings of Higginsville, and all have shipping connection with either the Chicago & Alton or the Missouri Pacific railways.

Mine No. 1 is located on the west side of Higginsville, near the city limits. Shaft 70 feet deep; equipped with machinery for hoisting. Ventilation is furnished by a 10-foot ventilating fan, which was found running at a speed of 74 revolutions per minute at date of first inspection, October 13th, 1899, and passing more than double the amount of air required by law around the mine. All the roadways had been relaid and repaired and the mine was in good condition.

I visited the mine again on the 16th of May and found it idle; hence no inspection. Coal 18 inches thick, and worked on the longwall plan with the movable face track in use; 40 men employed at date of inspection and paid 95 cents per ton for mining. Coal taken to Kansas City over the Chicago & Alton railroad.

Mine No. 2 is located about two miles west of Higginsville, and has shipping connection with the Chicago & Alton railroad. The shaft is 45 feet deep and operated by steam power. Ventilation is produced by the aid of a furnace, which is giving very fair results, considering the long distance the air has to travel through small and contracted airways. I inspected the mine on the 13th of October, 1899, and found it in good condition, with the ventilation satisfactory. I visited it on the 16th of May and found men at work taking out the machinery and the mine idle. Coal 18 inches thick and worked on the longwall plan; 95 cents per ton was paid for mining. About 40 men had been employed. The product was shipped to Kansas City.

Mine No. 5 is located $1\frac{1}{2}$ miles southwest of Higginsville. It is a slope opening and the coal brought to the surface by a horse. Ventilation is furnished by a furnace with good results. This mine is operated by contract; parties lease it and deliver the coal on the cars at a given price. Thickness of coal and mode of working is the same as that of other mines in this county.

Mine No. 6 is located $1\frac{1}{2}$ miles southwest of Higginsville on the Rocky branch, and has shipping connection with either the Chicago & Alton or the Missouri Pacific railways. Shaft 28 feet deep; operated by horse power apparatus for hoisting. Ventilation is produced by the aid of a furnace in a satisfactory manner. All the entries are brushed, and mules are used in hauling out the coal to the pit bottom. This mine has the largest output of any operated by this company. I made two inspections during the past year, October 14th and May 17th and found the mine in excellent condition at each inspection. Coal 18 inches thick; worked on the longwall plan with the movable face track in use; 95 cents per ton is paid for mining. About 65 men employed.

Mine No. 7 is a drift opening and ventilated by a furnace. It is located about 2 miles southwest of Higginsville, and has shipping connection with both the C. & A. or Mo. P. railroads. I made the first inspection of the mine on the 14th of October, 1899, and found a deficiency in the ventilation along the face of the workings, caused by the need of doors on the entries. The air enters the mine on each side of the working face through old drifts in great quantities, but is

allowed to return to the furnace before reaching all the men. Instructions were given to have doors set. The rock had been taken down on the main entries and mules substituted in place of men to take out the coal. Thickness of coal, mode of working and price paid for mining is the same as that of other mines in this county; 35 men employed.

J. H. Looney. Mine located 1 mile west of Higginsville, and has shipping connection with the Chicago & Alton railroad by a spur switch. Shaft 72 feet deep; equipped with machinery for hoisting. Ventilation is produced by a fan with excellent results. This was formerly known as the Hughes & Sons mine, but was purchased about a year ago by the present owner, who put in an electric plant to do the undermining in place of picks. Machinery was also erected here to hoist the product in place of horse power, and a new pit top built. A fan has also been set to ventilate the mine in place of a furnace, which makes everything up to date in and around the mine. I made two inspections of it during the year and found it in good condition, with the ventilation very satisfactory. The same seam of coal is mined here as at all other mines in this locality, but the prices paid for mining have been changed since the machines were put in. About 50 men employed. Product shipped and consumed at Kansas City.

J. H. Grim is operating a mine 2 miles southeast of Higginsville; drift opening, and ventilated by a furnace. Coal 18 inches thick, and worked on the longwall plan. The product is taken away in wagons, and a large portion is consumed in the vicinity of Higginsville; the remainder is loaded on cars and shipped to other points.

Haygood Coal Co. Price Gunn, manager. Mine located 2 miles southwest of Higginsville, and has shipping connection with both the C. & A. and Mo. P. railroads. Shaft 18 feet deep; horse power. Mine is ventilated by a furnace with very fair results. Coal 18 inches thick, and worked on the longwall plan, with the movable face track in use. About a foot of black slate comes down with the coal at all the mines in this locality which is used to build pack walls along the roadways, as no props are used. About 8 men employed, and 95 cents per ton is paid for mining. Product shipped to Kansas City, where it finds a ready market.

E. Y. Hoffman is operating a mine near Higginsville during fall and winter to supply local trade.

John R. Longest. Mine located 2 miles southwest of Higginsville, It is entered by a drift. It was operated during the past year by J. S. Stevenson. The coal is taken away from the mine in wagons and consumed in the surrounding country.

Mike Woskoski operates a mine 2 miles southwest of Higginville. Drift opening and ventilated by a small furnace. This mine is working the same vein of coal as that worked at other mines in the locality. The product is consumed in the neighborhood.

LEXINGTON POSTOFFICE.

Lexington is surrounded by coal mines, and is one of the best mining towns in the State.

While mining has been carried on here for more than 50 years, and the output of the mines yearly increasing, yet comparatively speaking, mining is in its infancy here and the coal seam practically just tapped. The vein is almost inexhaustible and can be found on all the high ground and in the hills. As soon as the present mines reach their limits and work stopped in them, new ones will be opened back of the river bluffs and they will likely be larger producers. Barring labor troubles I expect a largely increased output of coal here during the current year.

Bell & Greer operate a mine south of Lexington. Ventilation is secured by a small furnace with good results. Mine is entered by two drifts, one of which acts as the inlet and the other for the outlet of the air current after passing along the face of the workings. Coal 18 inches thick, and worked on the longwall plan. About 10 men employed in winter and 4 in summer; and while the mine is confined to local trade it has a very large output of coal every year.

Herman E. Mack. Mine located $1\frac{1}{2}$ miles southwest of Lexington. Shaft 62 feet deep; horse power. Ventilation is secured by a furnace. Thickness of coal, mode of working and price paid for mining are the same here as that at other mines in this vicinity. The output is hauled in wagons and consumed at Lexington and its vicinity.

O. M. Gaffin. Mine located 2 miles east of Lexington, and has shipping connection with the Mo. P. railroad by a spur switch. Mine entered by a drift and ventilated by a furnace. The same vein of coal is worked here and other conditions the same as its neighboring mines; 22 men employed.

C. A. Chanslor. Mine located east of Lexington and south of the Missouri river. It is entered by a drift and ventilated by a furnace with good results. Connection is being made with other mines on west side which will improve the ventilation. Coal 18 inches thick; worked on the longwall plan, and 95 cents per ton paid for mining; 8 men employed in winter and 3 in summer. Product taken away in wagons and consumed in the surroundings of Lexington.

Thos. Walton is operating a mine in the same locality as the Chanslor mine and has an underground connection with the latter. The mine is entered by a drift and ventilated by a furnace. Thickness of coal, mode of working and price paid for mining the same as at other mines in this locality. The product is consumed at Lexington and surroundings.

Rosewell Bros. Mine located east of Lexington. Shaft 75 feet deep and operated by horse power. Coal 22 inches thick, and worked on the longwall plan. Product hauled away in wagons and consumed at Lexington.

Lexington Coal Co. Major R. M. McDowell, general manager, and E. F. Wiley, superintendent. The company owns and is operating six mines in this county located on the east and west sides of Lexington on the south side of the Missouri river, all of which have shipping connection with the Boonville and Sedalia branches of the Missouri Pacific railway. The mines of this company, a description of each following, are known as the Graddy, Seawell, Glenoak, Riverton No. 1 and McDowell shaft.

The Graddy mine is located about 2 miles west of Lexington and has shipping connection with the Sedalia & Lexington branch of the Mo. P. railroad. Mine entered by a drift and ventilated by a furnace with excellent results. The elevation of the upcast shaft, including the smokestack, is fully 150 feet higher than the point where the air enters the mine, thus producing a natural current when no fire is kept, and indeed it is only during warm weather that a fire has to be kept. The air enters at the opening of the drift and divides to the east and west entries, passing along the face of the workings, uniting again at the terminus of the south entry; thence to the upcast, giving very satisfactory results. Thickness of the coal is the same here as that of other mines on the west side of Lexington, but the mode of working is different. Electric machines are used here to undermine the coal, and loaders follow the machines to load the coal, clean up the place and keep it in order. About 130 men employed. Wm. Parks, foreman.

The Seawell mine is located at Myrick junction, and has shipping facilities with the Mo. P. railroad. Mine entered by a drift and ventilated by a furnace. Coal 18 inches thick, and worked on the longwall plan. Mining is paid for at the rate of one dollar per ton in winter and 87½ cents in summer. I made two inspection of the mine during the past year and found it in good condition on each visit. Chutes have been erected at the mine to coal engines. About 50 men employed. Elias Spruce, foreman.

The Glenn Oak mine is located about 3 miles east of Lexington, and has shipping connection with the Boonville and Lexington branch of the Mo. P. railroad. Shaft 45 feet deep, and equipped with first-class machinery for hoisting. This mine is elaborately equipped with all the modern improvements. The engine house is large, well supplied with lathes and the necessary machinery to make pit cars, repair the cars and all the machinery in the company mines near Lexington. The ventilation is produced by two fans which are set at separate locations and ventilate thoroughly every part of the mine. The main entry is driven in an eastern direction and the cross entries north and south. The air current is conducted through the east entry to its terminus where it is divided to the north and south. The current from the north side is passed to one fan while that from the south side is conducted to the other fan. The west side by this arrangement is also ventilated, making three distinct currents in all and giving entire satisfaction. Coal 22 inches thick; worked on the longwall plan with the movable face track in use. Mining is paid for at \$1 per ton in winter and 87½ cents in summer. Geo. Burnstein, foreman.

Riverton No. 1 Thos. Goodwin, foreman. Mine located 1½ miles east of Lexington, and has shipping connection with the B. & L. B. of the Mo. P. railroad. The mine is entered by a drift and has an underground connection on the west with the McDowell shaft, and the west side of the Riverton mine is ventilated from the fan which is located at the McDowell shaft, while the east side is ventilated by a furnace. The ventilative current enters the mine at the opening and travels over the south entries to its terminus where it divides to the east and west sides and ventilates every part of the mine very satisfactory. Coal 22 inches thick; worked on the longwall plan, and like all the other mines in this surrounding use the movable face track. Sixty men employed, and prices paid for mining the same as that paid at other mines of this company.

McDowell shaft is located 1 mile east of Lexington, and has shipping connection with the Boonville & Lexington branch of the Mo. P. railroad. Shaft 45 feet deep; hoisting by steam power. Ventilation is furnished by a 10-foot ventilating fan with satisfactory results. This mine, like all the other mines operated by this company, is kept in good condition, with the ventilation above the demands of the law. The air current is carefully conducted along the face of the work. Double doors are set at each entry and at such a distance as will always allow the closing of one door before the other is opened while trips are passing, thus avoiding leakage or interference with the ven-

tilative current. These doors are properly hung, are made of three thicknesses of lumber, perfectly air tight, closed with the direction of the current and kept in good repair. In making this statement I wish to state that the same applies to all mines operated by the Lexington Coal Co. in the surroundings of Lexington. Thickness of coal, mode of working and prices paid for mining are the same as that paid at its other mines. The product of the mines is mostly consumed by the railroad company. Thos. Goodwin, foreman.

The Lexington Coal Company having purchased a large tract of coal land located some two miles south and a little west of Lexington, are at the present time rapidly opening up the property for active mining purposes. Shafts are being sunk, a branch railroad that will connect this newly acquired territory with the main line is in process of construction and we are informed that already one shaft has reached the coal at a depth of 90 feet, where the machinery necessary for a first-class thoroughly equipped mine is on the ground. Some distance south of the above mine another shaft is being sunk and our last information concerning it places the coal at 120 feet deep with the shaft almost down to the coal. Still another shaft in the same locality will be started shortly. The above three mines, when opened up, will undoubtedly surpass in equipment and production all other shafts worked in the low coal of this district. The prospects for this new mining camp are exceedingly bright, as we understand that this company, in its late purchase, has secured enough coal land to last for the next fifty (50) years. This justifies the improvements, we are informed, that will be made here; among others may be named the erection of a large number of dwelling houses for the miners and other employees of the company. It will not surprise me if this camp becomes the most populous mining camp in this State, for the reason that this company has, through its excellent management, cultivated and maintained more of the feeling of mutual interest, co-operation and harmony and with less friction between employer and employe than has been experienced by almost any other large company in the State. This condition we believe to be due to the confidence inspired by the disposition to treat directly with the miners working for the company without outside interference and to treat its employees wisely and fairly upon all questions arising between the miners and company.

J. C. McGrew's mines. Mr. McGrew owns and is operating two mines in this county and both have shipping connection with the L. & K. C. branch of the Mo. P. Both mines have drift openings with an underground connection between them; both are working on the same face of coal; ventilated by the same fan, and for all practical purposes

is considered as one mine with two openings. The air enters at the extreme east end of Mine No. 1 and travels along the face of workings westward; thence through Mine No. 2 into another opening where the fan is located. I made two visits to the mine during the past year and found it in excellent condition at each visit, with ventilation double the amount required by law, and all the doors in repair. All the entries are high, wide, dry and clean. At date of inspection, May 18th, the mine was found in good condition. The men blasting rock on the entries for their improvement and other work around the mines as good management directed. The roof is 8 inches thick, and worked on the longwall plan, using the level face track. About a foot of black slate comes down here and there the coal, which is used to build walls to secure the roof, as no timbers are used. About 100 men and boys are employed; 95 cents per ton paid for mining. Product shipped to Kansas City and points westward. Since the above was written Mr. McGrew kindly informed me that he has put in an electric plant at his mines to do the mining with electric machines in place of picks with a view of reducing the cost of production. The first electric machine was introduced into the mines of this county by the Lexington Coal Co. in the year 1893, and was placed in the Graddy mine as an experiment. It must have proved successful, for the company has added to them until now it has five (5) machines at work continuously. The same company will place electric machines in all of the new mines opened out. There are two other mines at Higginsville that have introduced electric machines in their mines during the past year. Whether the same proves profitable or not will be explained in the next report. Not having visited this mine since the electric plant was put in, I will leave further comment until the machines are fully tested, when we will report the actual work of each machine. The average length of vein feet undermined and the number of tons of coal produced per foot of work of each machine with a comparison of the cost of production between the machines and the pick work.

The Macey mine is located 2 miles west of Lexington, and has no direct connection with the L. & K. C. branch of the Mo.-P. railroad. It is entered by a drift; worked on the longwall plan and ventilated by a furnace. I made two inspections of the mine during the past year and found it in very fair condition at each visit, with the ventilation up to the demands of the law. Fifty-two and 30 men at work, respectively, at dates of inspections. Ninety-five cents per ton paid for mining. The product is shipped to Kansas City and points west.

Dover Coal Co. Mine located at Dover, and has shipping connection with the B. & L. branch of the Mo. P. railroad. The mine is at an elevation of 100 feet above the railroad track, and the coal is lowered to the railroad on an incline plane, the loaded cars in going down bring up the empty ones. It is a drift opening and ventilation is furnished by a furnace, which is giving very fair results when properly attended to. I inspected this mine on the 11th of October, 1899, and found the ventilation satisfactory. It was noticed on this visit that considerable improvement had been made during the summer. The rock on all the entries had been shot down and heavy iron rails had been laid on all the entries in place of the small iron, and mules substituted in place of men to haul out the coal. I visited the mine again on the 21st of May and found it idle. Coal 22 inches thick; worked on the longwall plan and using the movable face track; 55 men employed, receiving \$1 per ton for mining. The product is shipped to Kansas City and points west.

Aull & Serret Coal Co. Mine located 5 miles east of Lexington, and connected with the Boonville & Lexington branch of the Mo. P. railroad. Ventilation is furnished by a furnace with very fair results. Mine entered by a drift and worked on the longwall plan. The air enters the mine through an old drift on the east side, passing around the face of the workings and returning to the furnace. The mine under a former management was very imperfectly operated, and the present operators are at a considerable expense in getting it into proper shape. The roof on the east side is full of mud seams and hard to secure with timber, but the company is at present working it very successfully. Coal 22 inches thick and of very fine quality. The movable faced track is used here, and employment is given to 50 men, who receive 95 cents per ton for mining. The product is consumed at Kansas City and points west.

MAYVIEW POSTOFFICE.

Fisher & Lewis Coal Co. (successors to Sebastian Coal Co.) Mine located west of Mayview and connected with the Chicago & Alton railroad. Shaft 135 feet deep, and operated by steam power. Ventilation is furnished by a furnace with very fair results. This mine was opened out about 8 years ago, but very little work has been done, and practically speaking the mine may be considered new, although several parties have attempted to operate it, but with poor success; owing to so many changes the safety appliances have been neglected. On a visit to the mine on 14th of May I discovered the cages without covers or catches, and the curbing of the shaft out of line, making it

most impossible for the passage of the cages. Instructions were given to the company to have these defects remedied at once. The coal is rather thin and runs irregular, which makes it more expensive to operate. It is worked on the longwall plan; 15 men employed; 95 cents per ton paid for mining. Coal shipped to Kansas City.

WAVERLY POSTOFFICE.

Buckhorn Coal Co. R. R. Griffiths, superintendent and operator. Mine located one mile west of Waverly and connected with the Booneville & Lexington branch of the Mo. P. railroad. Shaft 110 feet deep; equipped with machinery for hoisting. Ventilation is furnished by fan, which was giving very fair results at date of inspection. This mine was closed down about four years ago by order of the Mine Inspector for failure on the part of the company to sink an escapement shaft as required by the mining laws, and then it remained idle until the present owner bought the property, took the water out, sunk another shaft, which will be used as a hoisting shaft, while a stairway will be erected in the old shaft and used as the escape. Coal 46 inches thick and worked on the double entry room and pillar plan. The coal is extracted by blasting it off the solid. The mine generates considerable gas, but it is well diffused as soon as it enters the mine by the strength of the air current. The roof that overlies the coal is a black slate, easily secured by timbering it; 14 men employed at date of inspection; 60 cents per ton paid for mining unscreened coal. Product shipped to Kansas City.

Silver Creek Coal Co. Ed Opie, superintendent. Mine located at Waverly and connected with the Booneville & Lexington branch of the Mo. P. railroad. Shaft 120 feet deep, and equipped with machinery for hoisting. Ventilation is furnished by a small fan set at the end of shaft and exhausting through an air chamber partitioned off at end of main shaft. I made first inspection of the mine on the 30th of September, 1899, and found preparation made to put in a side track to load coal on cars; that a new pit-top was erected and machinery on the ground to replace the horse power apparatus for hoisting. I visited the mine again on the 7th of December and found the ventilation satisfactory; that the side track had been completed, machinery erected and the mine in a condition to be classed as a commercial mine. Coal 4 feet thick and worked on the double entry room and pillar plan. The roof that overlies the coal is a black slate and easily secured by timbering, but the coal runs irregular and faulty. The mine is dry, with good roadways; 15 men employed, and 60 cents per ton paid for mining. Coal consumed at Kansas City.

Waverly Coal Co. M. Downs, superintendent. Mine located on the east side of Waverly and connected with the B. & L. branch of the Mo. P. railroad. Shaft 105 feet deep; operated by steam power. The mine is ventilated by an 8-foot fan with good results. I made two inspections of the mine during the past year; found the ventilation satisfactory, but otherwise not as well managed as it might be. It has been leased to so many different parties who were indifferent managers as to almost cause the ruin of the mine. Coal 44 inches thick and worked on the double entry room and pillar plan; 20 men employed, and 60 cents per ton paid for mining unscreened coal. The product is consumed at Kansas City.

WELLINGTON POSTOFFICE.

Labor Exchange Coal and Mining Association. Mine located 1½ miles west of Wellington, and connected with the Lexington & Kansas City branch of the Mo. P. railroad. Shaft 85 feet deep; operated by machinery for hoisting. This is a new mine operated on the co-operative plan. It is ventilated by a furnace. Coal 18 inches thick, and worked on the longwall plan; 10 men employed, and 95 cents per ton paid for mining.

Wellington Coal Co. Mine located 2 miles west of Wellington, and connected with the L. & K. C. branch of the Mo. P. railroad. Shaft 40 feet deep; hoisting by a horse. Mine is ventilated by a furnace with acceptable results. It was found in good condition at dates of visits. Thickness of coal, mode of working, and price paid for mining is the same at this mine as that of other mines in this locality; 50 men employed. Product shipped to Kansas City.

A. Carter & Son. Mine located 2 miles east of Wellington and has shipping connection with the Lexington branch of the Missouri Pacific railway. Mine entered by a drift and ventilated by a furnace. Coal 18 inches thick; worked on the longwall plan, with the movable face track in use. About 25 men employed in winter and 5 in summer; \$1 per ton is paid for mining in winter and 87½ in summer. The product is shipped to Kansas City.

L. B. Seits. Mine located 1 mile east of Napoleon, and has shipping connection with the Sedalia, Lexington & Kansas City branch of the Mo. P. railroad. Shaft 42 feet deep; operated by horse power. The ventilation is furnished by a small fan with very fair results. This mine had been closed down for several years and filled up with water, but during the summer of 1899 Mr. Seits, with others, took out the water, cleaned up the mine and started operations in the fall. Coal 18 inches thick, and worked on longwall plan, paying for mining

5 cents per ton; 22 men employed in winter and 8 in summer. Coal consumed at Kansas City.

LINN COUNTY.

Production, 81,130 tons.

Linn county ranks No. 11 on the list of coal producing counties of the State, with an output of 81,130 tons for the past year. Six mines were operated, a description of which, together with a statement as to their location and condition at dates of inspection, will be found as follows:

BROOKFIELD POSTOFFICE.

Brookfield Coal Co. Geo. Champ, foreman. Mine located half a mile east of Brookfield and conneted with the H. & St. Joe railroad. Shaft 150 feet deep, and hoisting by steam power. The ventilation is furnished by a furnace. I made two inspections of the mine during the past year and found it in a very fair condition. New work is being opened out on the south side where all the men were working at date of last inspection. Coal 28 inches thick, but there is a layer of slaty coal in the center about 8 inches thick, which has to be picked out and thrown in the gob. Mine is worked on the longwall plan; 25 men employed, and 90 cents per ton is paid in winter and 75 cents in summer. A large amount of the product is taken away in wagons and consumed at Brookfield and surroundings.

The Old Clark mine is abandoned, and Mr. McElhaney is now sinking a new mine in the same locality, expecting to be ready to operate it during the coming fall and winter.

L. R. Williamson. Mine located 2 miles southeast of Brookfield. Shaft 150 feet deep; hoisting by a horse. An escapement shaft was sunk here during the past year, but the underground connection to it had not been made at date of last visit, May 3rd. Coal 28 inches thick and worked on the longwall plan. The coal is taken away in wagons and consumed at Brookfield and vicinity.

Bernard Schaeffer & Sons. Mines located nearly 2 miles southeast of Brookfield. Shaft 145 feet deep; equipped with machinery for hoisting. Ventilation is secured by the aid of a furnace which is doing good work. An escapement shaft was sunk during the past year and connection made with the underground workings. Coal 28 inches thick and worked on the longwall plan. This could be made a productive mine under more favorable shipping conditions, but being located about 2 miles from shipping connection the output is limited to local demand. The product is largely consumed at Brookfield and locality.

MARCELINE POSTOFFICE.

Landreth & Son. Mine located at Marceline. Shaft 130 feet deep; horse power used for hoisting and ventilation is produced by a furnace. Coal 28 inches thick; worked on longwall plan, and pay \$1 per ton for mining. Product taken away from the mine in wagons and consumed at Marceline and surrounding country; 6 men employed in winter.

Marceline Coal Co. James Hemmings, superintendent, and Barney McElmen, foreman. Mine located at Marceline, and has shipping connection with the Santa Fe railroad by a spur switch. Shaft 185 feet deep, and equipped with first-class machinery for hoisting. The ventilation is furnished by a 12-foot ventilating fan, which is giving entire satisfaction. I made two inspections of the mine during the year. First inspection was made on the 8th of November, 1899, and found it in good condition, with plenty of fresh air traveling along the face of the workings. All the work has been confined to the south side of the shaft for a number of years, and the ventilative volume is traveling over the south entry to its terminus and is then divided to the east and west cross entries, passing along the face of the workings to the fan shaft; but enough air is allowed to enter every cross entry to keep it ventilated sufficient for men and mules to travel over; or, in other words, practically every entry is a split, and one may consider as many currents or splits existing on the south side as there are cross entries. Made another inspection on the 4th of May and found the mine in good condition, with the ventilation satisfactory. All the safety appliances were found in good working order, with all the requirements of the law closely observed. A new cage had been built with covers on and the latest improved safety catches. There were 200 and 175 men and 7 mules at work, respectively, at dates of inspection, and \$1 per ton is paid for mining. The coal is about 28 inches thick, and worked on the longwall plan. It is underlaid by fire-clay mining, and overlaid by a slate roof easily secured by timbering it, but the props have to be placed close to the coal face. The product is largely consumed by the railway company.

LIVINGSTON COUNTY.

Production, 3,813 tons.

CHILLICOTHE POSTOFFICE.

W. A. Cox operates a mine 5 miles north of Chillicothe. Shaft 60 feet deep; hoisting by horse. Coal 22 inches thick, and worked on the room and pillar plan; 6 men employed in winter, and pay \$1.25

cents per ton for mining. Coal is taken away in wagon and consumed at Chillicothe.

J. C. Cox operates a mine in the same locality on the same seam of coal and operates on the same method. Mine entered by a vertical shaft 55 feet deep, and hoisting by a horse. Coal consumed at Chillicothe and surrounding country.

John Adams is operating a mine close to the Cox mine on the same coal seam. Shaft 50 feet deep; horse power. Coal same thickness as other mines, and consumed in the vicinity.

MOOREVILLE POSTOFFICE.

Frank Wilson is now operating the Garlick mine near Mooreville. Shaft 51 feet deep; operated by horse power. Coal 18 inches thick and worked on the longwall plan. Coal consumed in the surrounding country.

MACON COUNTY.

Production, 595,297 tons.

Macon county continues in the lead of coal producing counties in the amount of coal mined. In 1891 she ranked second on the list, but for the past 8 years she has been at the head of the procession, and stands prominently at the front in this report with an output of 595,297 tons of coal. The product would have been considerably larger but for the labor trouble at the mines of the Kansas & Texas Coal Co., which has continued throughout the year. To produce this amount of coal 17 mines were operated, and 1,445 men and boys were employed; 18,721 kegs of powder were used during the year, which cost the miners \$37,432. The larger mines are located at Ardmore, Bevier and Lingo. The Hannibal & St Joe and the Wabash railways passing through the coal field furnishes good shipping facilities for the product of the mines. Three inspections were made of all the larger mines during the past year. Following is a description of the principal mines, together with a statement as to their location and condition in which they were found at dates of inspection:

ARDMORE POSTOFFICE.

Kansas & Texas Coal Co. B. F. Hobart, president; F. Doubleday, general manager, and Arthur Vail, superintendent. This company owns and is operating a large number of mines in the surroundings of Ardmore, and are great factors in the coal production of Macon county. All the mines of this company have shipping connection with the Wabash railroad. The mines are located about 4 miles from the Wabash railroad, but the coal company owns all tracks connecting

with the main line, together with a locomotive and other equipment necessary to transport its product to the Wabash track at Excello. During the past year the coal company has extended the track from Ardmore to Bevier, a distance of about 9 miles, and it is now able to ship the coal from any one of its numerous mines either to the H. & St. Joe or Wabash railway. The same vein of coal is worked at all the mines and the double entry room and pillar system of mining is universally practiced. The mines are all well equipped, properly ventilated and practically operated.

Mine No. 48 is a vertical shaft 60 feet deep; equipped with first-class machinery for hoisting, draining and ventilating. I inspected the mine on the 26th of September, 1899, and found the ventilation satisfactory throughout. The roof that overlies the coal is soft and friable, requiring the use of a large amount of timber to keep it up, and making this particular part of the work expensive to the company. I noticed that several entries had been stopped and several of the men were drawing pillars. I visited the mine again on the 5th of May and found nearly all the work confined to drawing pillars with the intention of abandoning it in the near future. There were 60 and 40 men at work respectively at dates of inspections.

Mine No. 57. George Burge, foreman. Mine entered by a slope and ventilated by a furnace. I inspected it on September 26th, 1899, and found it in very fair condition, with the ventilation satisfactory. The mine had been idle for some time, owing to a suspension of work by the old hands, and it had only just started with a new set of miners most of whom were negros. Some parts of the mine suffered considerable damage while it remained idle, and men were at work cleaning up. I visited it again on the 5th of May and found the south entry driven through one hill and into the one beyond; the new work was opened out in the second hill and the coal hauled through the first hill to be dumped. Both the old and new mines were in good condition, with the requirements of the law closely observed and obeyed. Coal 4 feet thick, $56\frac{1}{2}$ cents per ton being paid for mining during the winter and 55 cents in summer for unscreened coal; 40 men employed at dates of inspection.

Mine No. 62 is located about a mile west of Excello and is operated by John Stewart. Drift opening, and ventilated by a furnace. The coal is hauled half a mile over a tramway, hoisted through a shaft, and loaded on cars; 12 men employed.

Mine No. 68. J. Weeks, foreman. Mine located southeast of Ardmore proper. This is a drift opening, with a track elevated sufficiently above the railroad to permit of dumping. The coal is brought to the

surface by machinery. Ventilation is produced by the aid of a furnace with excellent results. This is a new mine opened out during the past year. All equipment at this mine is new and well constructed. A new engine house was being built, about 2 miles of railroad track constructed from the East Fork bridge to the mine, and about 40 dwelling houses erected for use of the miners. I inspected the mine on the 5th of May and found it in excellent condition, but a permanent system of ventilation had not been adopted at this date, or were permanent doors set; but the ventilation was very satisfactory. The entries are high, dry and clean. About 60 men employed. Prices paid for mining, $56\frac{1}{2}$ cents per ton in winter and 55 cents in summer for unscreened coal.

Mine No. 69. M. Clifford, foreman. This mine is located about half mile east of No. 68, and is working the same seam of coal and on the same plan. Mine entered by a drift and ventilated by a furnace. The ventilation is good and the mine otherwise was found in good condition. Mine perfectly dry and entries wide, high and clean; this also being a new mine its capacity was small; about 25 men employed.

Mine No. 70. This mine is also entered by a drift and is located just east of No. 69. The mine had not been fully opened up at date of my visit; neither had railroad connection been made for shipping the product. I discovered three other mines had been started in close proximity to Mine No. 70, which will be known as Nos. 1, 2 and 3 annex. The coal at these mines is about $4\frac{1}{2}$ feet thick and of very fine quality. All the mines in this new location have a very good roof, easily secured by timbering.

BEVIER POSTOFFICE.

Bevier Black Diamond Coal Co. L. J. Loomis, manager, and Ben Brewitt, foreman. Mine is located $1\frac{1}{2}$ miles southwest of Bevier, and has shipping connection with the H. & St. Joe railroad by a spur switch. Shaft 60 feet deep, and operated by machinery for hoisting. Ventilation is furnished by a 12-foot ventilating fan, which is constantly running at a speed of about 90 revolutions per minute, and circulating a large current of air up and down the shafts, but owing to small and contracted air ways but a small part of this large volume of air reaches the miners. I visited the mine on the 20th of September, 1899, and the ventilation was found deficient in quantity and very impure in quality. Instructions were given to the company to improve both, and this could only be done by stopping pillar work, closing up necks of abandoned entries and taking off stoppers on main air courses in order that the air might be conducted direct from the down cast

to the miners at work. I returned to the mine again on the 7th of October and found that work had been abandoned in the 9th, 10th, 11th and 12th east entries and their necks stopped up. Ventilation was found stronger and purer, but not wholly satisfactory or up to the requirements of the law; but the management stated that it had just bought three acres of fresh coal in order to keep up the output of the mine while the pillars and courses were being worked out; that the number of men employed would be gradually decreasing and the mine abandoned within six months from that time. Not having the desire to demand unnecessary expense on an old mine, felt satisfied that as the number of men would be diminishing every month that the ventilative current would be sufficient, all things considered. There were from 45 to 50 men at work at that date. On the 28th of March I visited the mine again and found that the company had purchased more coal land and opened out new works on it; also found that 66 men were at work without any provision being made for ventilation. The air was so bad at that date that a light would not burn in more than one-half of the working places, and I called the men out and ordered the mine closed until better ventilation was provided. The men stood firmly to the instructions of the Inspector until the company sunk an air shaft at the face of the workings. This new shaft was used as a down cast and furnished an abundance of fresh air direct to the miners. I visited the mine again on the 31st of May and found the ventilative current stronger and fresher than on the last visit, but not entirely satisfactory, as the return air course was found, owing to falls and caves, too small to pass the required amount of air. Suggestion was made to the company that it conduct the air back over the main entry to the shaft bottom, and by cutting through the pillar cause the air to pass direct to the fan shaft, which would result in securing a sweeping current. Coal 4 feet thick and worked on the double entry room and pillar plan, paying 55 cents per ton for mining unscreened coal.

Bevier Black Diamond Annex. Mine located near the other mine, and sunk for the purpose of working out a few acres of coal between faults. Shaft 45 feet deep, and hoisting by a horse. Coal 4 feet thick, and worked on the room and pillar plan. The coal is hauled over a tram road to the old shaft and dumped into cars; 25 men employed.

Northwestern Coal Co. John H. Bovard, general manager, and George Michael, foreman. This company owns and is operating two mines at Bevier, both of which have shipping connection with the *& St. Joe railroad.*

Mine No. 4 is a shaft 60 feet deep, equipped with good machinery for hoisting, draining and ventilating. The mine is ventilated by a fan which forces the air into the bottom; from thence it is conducted to the face of the workings over the north entry, making its exit through an air shaft near the terminus of the mine. I inspected the mine on the 20th of September, 1899, and found the ventilation up to the requirements of the law; at which time 200 men and 20 mules were employed. Visited the mine again on the 29th of March and found the ventilation satisfactory and about 125 men at work. The entries had been stopped and work was confined to rooms and pillars. I made another visit to the mine on the 2nd of June and discovered that all the men were at work drawing back pillars; this will soon finish up the mine.

Mine No. 8 is located about a mile south of Bevier. Shaft 130 feet deep; equipped with first-class machinery for hoisting. This is a new mine opened out during the past year. The shipping connection is made by a switch extending to the Watson mine. This mine is equipped with all the modern improvements. The engines were built by Wright & Adams of Quincy, Illinois. The cylinders are 14 by 28 inches, connected direct to a 5½-foot drum working on first motion. The machinery is set on a solid rock foundation and enclosed in a new and substantial house. The pit head and top buildings are all new and well constructed, furnishing every convenience for the handling of coal. Self-dumping cages and a shaking screen are also included in the equipment. An escapement shaft has been sunk 300 feet from main shaft and a fan will be erected on top of it. The underground connection, however, had not been made at date of last inspection. I made the first inspection of the mine on the 27th of March and found the work confined to driving entries in order to open out the mine. Ventilation was furnished by a fan set on top of the shaft exhausting through an air chamber partitioned off at end of hoisting shaft and giving satisfaction. Made another inspection on the 1st of June and found the mine ventilated on the same plan as on former visit with good results. I discovered the mine had been considerably advanced in the opening process with about 60 men employed. The connection to the escape shaft had not been made, and instructions were given to the management to drive the communication with all possible speed until the connection was made and within ten days from that date this office was notified by the company that the connection had been made. A permanent system of ventilation could not be made until entries were driven through to the escape shaft from each side of the

mine, when this is done, the current will be divided into four splits and each split conducted around into as many separate districts. Coal will average over 4 feet in thickness and is worked on the double entry room and pillar plan, the coal extracted by blasting it off the solid, 55 cents per ton paid for mining unscreened coal. The mine has now a fair output for a new mine, but in the near future will be one of the largest producers in the county.

Watson Coal Co. Wm. Rivers, superintendent. Mine located about a mile south of Bevier, and has shipping connection with the H. & St. Joe railroad by switch extending from the main track. Shaft 85 feet deep; equipped with first-class machinery for hoisting and ventilating. The mine is ventilated by a 12-foot fan with very acceptable results. I made three inspections of the mine during the past year and found it in a very satisfactory condition at each visit. Made first inspection on the 18th of September, 1899, and found the mine in good condition, with the ventilation up to the requirements of the law. The escapement shaft had been completed and a stairway built since my last visit and will be used as an avenue of escape for the men in case of fire. Visited the mine again on the 26th of March and found everything in a satisfactory condition. I discovered on this inspection that new works were opened out on the adjoining coal property at the head of the present workings on the north side. Unfortunately the company neglected to secure the coal property sandwiched between the mine and other coal property owned by it. Now that this other coal will be needed in the prosecution of its work, it will have to be reached in a round about way; this will not only make an extra long haul, but necessarily retard the free passage of the air current, as so many angles and corners will have to be turned that otherwise would not have been encountered. Inspected the mine again on the 31st day of May, finding the ventilation good and meeting all requirements of the law. The safety appliances were found in good repair and condition. The coal in this mine is four (4) feet thick, worked on the double entry room and pillar system, with an average of 55 cents per ton paid for mining. There were 175, 125 and 100 men employed at the respective dates of inspection.

Murlin Coal Co. W. E. Murlin, manager and superintendent, and John Davis, foreman. Mine located one mile south of Bevier and has shipping connection with the H. & St. Joe railroad by a switch extending from the main track. Shaft 55 feet deep; equipped with good machinery for hoisting. The mine is well ventilated by a 10-foot fan. *I made three inspections during the past year, and its condition at each inspection will be minutely described as the conditions warrant.*

This is known as Mine No. 7, and was formerly operated by the Kansas & Texas Coal Co. During the labor trouble of the year 1899, a call was made on the employes of that company to suspend work in sympathy with their fellow-miners in other states who were on strike. This call was made by the organization known as the the United Mine Workers of Amerca. The call was responded to to a man, and the mine remained idle from the latter part of May until the 4th of November, when Mr. Murlin leased it, signed the scale and started operations and at date of first inspection, December 12th, had 250 men and 20 mules employed. The mine having laid idle over five months naturally suffered considerable damage; but every effort was made by the management to restore it to its former condition. The ventilation on the north side was found in a very satisfactory condition; the ventilative volume on the south side was found divided into three currents, one current was ventilating the 1, 2, 3 and 4th west entries, another current was passed over an air crossing, furnishing the air to the 5th and 6th east entries, while the third current was furnishing the ventilation for the 5th, 6th, 7th and 8th west, and the 9th and 10th east entries. I discovered that the 3rd current was very much overloaded with work, it having to pass so many abandoned places which generate so much impure and foul air caused the quality of air to be a more serious matter than its quantity. Instructions were given to the company to close up all old openings by air tight stoppings which was promptly complied with. I made another inspection on the 26th of March and found the ventilation good in every part of the mine and the mine otherwise in good condition. I discovered at this visit that the north side was working under a very deep ravine where a large body of water accumulated at times, and as the covering over the coal was so shallow I considered it dangerous for the miners to work under it, ordering that work in that part of the mine be stopped, and that baricades be built strong enough to hold back any rush of water that might accidently break into the mine. Part of the first west entry of the south side which had been worked under the pond was also condemned and stopped, and strong baricades built at the entrance of each entry. I inspected the mine again on the 29th of May and found it in good condition, with ventilation satisfactory. Since the north side has been stopped the whole volume of air is conducted now to the south side where the air was found stronger at this date than at any previous inspection. Coal 4 feet thick and worked on the double entry room and pillar plan. About 250 men and boys employed, and 55 cents per ton paid for mining *unscreened* coal. The mine is making a large

amount of water, but is readily handled by steam pumps. Product shipped west and northwest.

Kansas & Texas Coal Co. B. F. Hobart, president, F. E. Doubleday, general manager, and Ed Vail, superintendent. This company is operating two mines in the surroundings of Bevier, and both have shipping connection with the H. & St. Joe railroad by switches extending to the mines from the main track.

Mine No. 61. James Monihan, foreman. Mine located 2 miles south of Bevier. Shaft 126 feet deep and equipped with first-class machinery for hoisting. This is the finest and one of the best equipped mines in the State. The engines were manufactured by the Litchfield Machine Company of Litchfield, Ill. Size of cylinders 18 by 32 inches, connected direct to a 6-foot drum working on first motion. All set on solid rock foundation and enclosed by a substantial and convenient engine house. The pit top and head gear are well constructed, these being 59 feet from surface to pulleys. The head house is 98 feet long by 34 feet wide and 40 feet high from level of track to the landing from where the coal is dumped in the hopper. The coal is discharged from a self-dumping cage into a hopper where it is weighed on a hopper scale, after which it is delivered to a jigger screen, which screen cleans and grades the coal into four different grades or sizes, and four tracks are provided or a track for each grade, and slack, pea, nut and lump coal can be loaded at the same time, and the mine has a yardage capacity or side tracks that will hold 100 cars, 50 empties and 50 loaded, on each side of tipple. The Phillips box-car loader is used here which is the best and most improved loader of any yet invented. The blacksmith shop is equipped with engine, lathe and other machinery to do all the repairs of the mine, and all buildings are roofed with iron. Three boilers have been erected to supply the steam power, each of them two flue boilers 4 feet in diameter and 24 feet long. The company contemplates putting up another boiler this coming fall. The exhaust from the machinery is conducted into a large well where the water is condensed and then used again in the boilers. Mr. Vail, the superintendent, has demonstrated that this latter feature saves about one-third of the amount of water required, besides making a great saving in fuel. The equipment of this mine with its latest improved machinery makes it the most elaborate and complete plant in Missouri. The fan in its present position is a temporary arrangement and while it is giving satisfaction the location will be changed and the fan erected in a more substantial manner with the latest improved casings, together with some changes to the intake and outlet of the air from those formerly used. The ventilation is furnished by a 12-foot fan,

which was giving excellent results. I made the first inspection on the 19th of September, 1899, and the coal at this date was hoisted through the trial shaft; but a connection had been made with the new hoisting shaft just sunk and preparations were being made to take the coal out through the new shaft. The ventilation at this date was furnished by a fan set at one side of shaft, exhausting through an air chamber partitioned off one end of hoisting shaft which was giving entire satisfaction. The mine was found clean and healthy. I inspected the mine again on the 27th of March and found it in excellent condition, with the ventilative volume of air fully three times the amount required by the law; it was also properly conducted around the workings. The airways are all high, wide and clean, with plenty of area for a large volume of air to pass through them at moderate speed. The ventilative current at this date was conducted around the mine in four separate divisions and each division ventilating a separate part of the mine. I found the coal hoisted through the new shaft at this visit and that a permanent system of operating and ventilating the mine had been adopted. Also found the pit bottoms had been secured with large timber and a double track laid for a great distance, so that one driver can pass in with his trip without coming in contact with the driver with his trip, coming in the opposite direction. It was noticed on this visit as well as on my previous visit that the mine had been worked by unskilled labor, mostly negroes, and they as a class are complete failures as coal diggers, because to a certain extent a miner working in his own room is his own boss, compelled by the very nature of his surroundings to use judgment and great caution. To call this class of labor miners is a misfit as they are unworthy the name. Considering the excellent condition in which the mine was found, I am compelled to compliment the management on it, in view of the class of labor employed and the greater difficulty in keeping the mine up with such help. I made another inspection on the 1st of June and found everything very satisfactory. Coal 4 feet thick and worked on the double entry, room and pillar plan, with the pay for mining $56\frac{1}{2}$ cents per ton in winter and 55 cents in summer for unscreened coal. Product shipped west. There were 200, 210 and 260 men at work, respectively, at dates of inspections.

Mine No. 66, Kansas & Texas Coal Co. Robt. Patterson, foreman. Mine located 4 miles south of Bevier. Shaft 50 feet deep, and equipped with first-class machinery for hoisting. This is a new mine opened out during the past year and commenced the shipment of coal in April of the present year. I inspected the mine on the 27th of March and found that two shafts had been sunk, one for hoisting, the other for

an escapement shaft, about 600 feet apart, with men working in each in order to make an underground connection between the two. There were 60 men at work in the two shafts at this date with the greater number working in the escape shaft where the ventilation was furnished by a fan set on top of shaft and exhausting through an air chamber along side of shaft. Made another inspection on the 1st of June and discovered that the connection between the two mines had been made, but that the fan had not been permanently set, but there was a plenty of air circulating. About the first part of July Mr. Vail kindly notified this department that a 12-foot fan had been erected and put in operation at this mine and that it was doing great work, supplying the mine with double the amount of air required by law, with a fan speed of only 35 revolutions per minute. This mine is equipped with the machinery from old No. 43 mine which was taken down, repaired, removed and set up here. A large number of houses have also been removed and rebuilt at this mine. This mine is located on a branch railroad built by the coal company from Ardmore to Bevier, and shipments can be made to either the H. & St. Joe or the Wabash railways. Coal $4\frac{1}{2}$ feet thick and worked on the room and pillar plan, it is overlaid by a good slate roof easily secured with timber; 80 men employed.

There are several other parties operating mines in different parts of the county during fall and winter to supply the local demand. The names of all parties with other information will be found in the statistical table of Macon county.

LINGO POSTOFFICE.

Helmet Coal & Mining Co., successors to the Little Pittsburg Coal Co. Chas. Parker, foreman. Mine located at Lingo and has shipping connection with the H. & St. Joe railroad. Shaft 135 feet deep; equipped with machinery for hoisting. I visited the mine on the 22nd of September, 1899, and found it idle, and was informed that the miners were on a strike; hence no inspection was made. I returned and made an inspection on the 7th of November and found the ventilation all right as to quantity, but very hot. The ventilation is furnished by a 12-foot fan which supplies plenty of air to the mine and it is properly conducted around the work; but the mine is very dry and spontaneous combustion takes place in the refuse stowed away in the gobs. The heat from these gobs coming in contact with the ventilative current heats the air and it is not only very unpleasant for the miners, but detrimental to the roof which sweats and crumbles from the effect of the heat. I made another inspection on the 3rd of May and was informed that the mine had changed hands, and also the

management. I found on this visit that the south side of the mine which had been abandoned for 18 or 20 years had been cleaned and retimbered, and an iron track laid ready for operation; that an air shaft had been sunk at the head of the south entry and that work is now being started on that side. The connection to the air shaft on this side had not been made at date of last inspection, but all preparation for it and for starting operations had been made in a good workman-like manner. Men were also at work cleaning and timbering the north entry in order to open out more work and increase the output of the mine. About 30 new houses have been built for use of the miners, and preparations were being made at this date to take out the machinery and replace it with a larger and better class and also to rebuild the pit head and top buildings. While this is one of the oldest mines in the State now in operation, yet after these improvements are made it will be equal to a new mine. I found about 100 men at work at this date in the northwest, and the ventilation was found as good as expected with the one current system of ventilation. With conditions existing as it is at this mine there should be a separate current of air for every 20 men working therein, and efforts will be made by the present company to improve the system and better the ventilation. Coal $3\frac{1}{2}$ feet thick and worked on the longwall plan, but the roof is not well adapted for this method, as it is soft, friable and breaks with the face, thus losing the benefit of the first principle in longwall work, that of the weight of the roof breaking down the coal; 60 cents per ton is paid for mining. Product consumed at Kansas City.

MONROE COUNTY.

Production, 822 tons.

There are several parties operating mines in different parts of this county during the winter months to supply the home demand. The surface vein is mined in this county, which is about 20 inches in thickness. The mines are all entered by drifts. Several years ago while sinking a well on the land of Col. J. Evans, about 2 miles southeast of Paris, a deposit of coal was struck at a depth of 25 feet which caused considerable of a coal excitement at the time, but the deposit was not developed; the excitement quieted down and not until last winter was the excitement renewed again when the same deposit was again struck half mile northwest from the original strike at a depth of 52 feet. The coal is about 7 feet thick, the upper 5 feet being bituminous coal with 2 feet of cannel coal underneath. It is overlaid by a grey sandstone, which would make an excellent roof. I examined this coal in June of the present year and found it to be of very fair

quality for all heating purposes. It will doubtless make steam readily, but would soon burn out, as it does not possess the substance to furnish the lasting qualities. I believe it to be the same deposit of coal which has been struck at both places, and as the points are a half a mile or more apart, there must be a very large body of coal existing there; its local deposition, or what is known as an isolated pocket, will require prospecting to find out its true extent. Coal pockets are always found in ravines, creek bottoms or other low places, but very seldom will the coal be found running under the hills.

MONTGOMERY COUNTY.

Production, 1,675 tons.

WELLSVILLE POSTOFFICE.

Black Diamond Coal Co. Mine located 1 mile south of Wellsville. Shaft 42 feet deep; hoisting by a horse. Coal 28 inches thick and worked on the longwall plan. Ventilation is furnished by a furnace. Mine operated to supply local demand and the product is consumed at Wellsville and vicinity.

Wellsville Coal Co. Mine located at Wellsville. Shaft 85 feet deep; equipped by horse power for hoisting. Coal 28 inches thick; worked on the longwall plan and ventilated by a furnace. Coal taken away in wagons and consumed at Wellsville and surroundings.

Henry Whitehead operates a mine near Wellsville during the winter to supply the home trade.

A. Appling operates a mine 4 miles south of Wellsville during the fall and winter to supply the home demand. The same seam is worked at all the above mines, and same method of mining practiced.

NODAWAY COUNTY.

Production, 2,371 tons.

BURLINGTON JUNCTION POSTOFFICE.

Peirson & Carpenter operate a mine near Burlington Junction, on Roe Carpenter's land. Shaft 70 feet deep; hoisting by horse. Coal 20 inches thick; worked on the longwall plan, and mine ventilated by a furnace. Employment is given to 5 men in winter, and \$1 per ton paid for mining. The product is consumed in the surrounding country.

Moore & Potts operate a mine in the same locality during the fall and winter to supply home consumption.

Mullins & Hedrick are operating a mine near Quitman. Coal 11 inches thick, and worked on the longwall plan. Mine operated only during the winter months, and the product is consumed in the immediate locality.

PUTNAM COUNTY.

Production, 106,203 tons.

Putnam county may be classed as one of the large coal producing counties of the State. With an output of 106,203 tons of coal during the past year. Her principal mines are located at Blackbird, Mendota and Unionville, but there are several small mines operated at other points in the county during cold weather to supply the home demand. Following is a description of the larger mines, and a statement as to their location and condition as found at dates of inspection:

BLACKBIRD POSTOFFICE.

Blackbird Block Coal Co. A. P. Anderson, superintendent. Mine located at Blackbird and has shipping connection with the C. B. & K. C. railroad. Shaft 53 feet deep; equipped with machinery for hoisting. The mine is ventilated by a 12-foot fan which was giving very fair results at dates of inspections. I visited the mine on the 9th of November, 1899, and found its condition greatly improved since my previous inspection; airways had been cleaned and made larger, and a satisfactory amount of air was found passing at every point. Ditches had also been made and the roadways found dry and in good condition. Inspected the mine again on the 21st of April and found it in good condition, with the ventilation up to the law's requirements, with cages, ropes, covers and safety catches in a safe working condition. Coal 33 inches thick and worked on the room and pillar plan; 74 cents per ton is paid for mining in summer and 84 cents in winter for run of mine coal. Product shipped north and west.

MENDOTA POSTOFFICE.

Mendota Coal Co. F. B. Ketchum, presidet, and B. H. Johnston, superintendent. This company operated two mines at Mendota during the past year, and both mines have shipping connection with the C. B. & K. C. railroad by switches extending from the main track to the mines. Both mines are working the same coal seam, and the same method of mining is practiced in each. The coal at these mines will average about 34 inches in thickness, and is separated into two layers by a clay band two inches thick, running regularly near the center of the coal. It is underlaid by fire clay mining, and directly overlaid by a strong black slate about 10 inches thick and next to the slate lies a strong cap rock of the limestone variety, which makes an excellent roof for either the long wall or room and pillar method of mining. The

entries are driven double, and double rooms are turned off from both of the entries and carried 40 feet wide, with a wheel road on each side and two men in a room. The air is conducted in on one road around the face of the room and out the other and has proven to be a satisfactory as well as a practical system of ventilating. The coal is worked by undermining, cutting both sides and wedging it down. This is what is termed pick work, as no powder is used, and what I consider practical mining. Both mines are well ventilated and practically operated; they are dry, clean, safe and healthy, and are kept in good condition.

Mine No. 2. Ben Weymouth, foreman. Mine located two miles east of the Mendota depot. This is a shaft 63 feet deep, and equipped with first-class machinery for hoisting. The ventilation is furnished by a 12-foot fan with very satisfactory results. I made two inspections of this mine during the past year and found it in good condition at each visit with the ventilation up to the demands of the law. On my first inspection, November 11th, measurement of the ventilative volume was taken at the foot of the downcast and found 21,440 cubic feet of air per minute passing. This volume was conducted around the work in three separate currents, and was well taken care of, as the only leakage worthy of notice was found at the first south entry. Noticed on this inspection that all the doors had been repaired, and some had been reset and were in better condition to turn air than on any former inspection. Made another inspection the 19th of April, and found the ventilation up to the requirements of the law in every part of the mine with the exception of the longwall work on the extreme end of the west entry, where a deficiency was found. The longwall work was started as an experiment, and having proved successful more men were added to this to work than could be ventilated satisfactory; but preparation was made at the time to set doors so as to turn the current around to the face, and an airway was being driven on the right-hand corner of the north end of the longwall as an outlet for the return air; this arrangement when completed will supply sufficient air for the longwall work. I found the air strong and fresh on the straight east entry, also in the east off of the first south as well as in all the south entries. There were about 175 men and boys employed at each date of inspection, and 13 mules. It was also found on this visit that the fan shaft had been retimbered from top to bottom and a ladder built for the men to come out on it in case of accident to hoisting shaft. The entries are high, dry, wide and clean, and kept in a safe and good condition.

Mine No. 8. Ed McCullum, foreman. Mine located about half a mile from depot. Mine entered by a drift, and ventilated by a furnace which is giving excellent results. This is a new mine, opened out during the past year, and at date of inspection, April 20th, had about 85 men employed. It is practically opened out and well ventilated. The air at present travels around the mine in one undivided current, but preparations were made to construct an overcast on the main entry and divide it into two or more currents. When that is done the ventilative volume will enter at the mouth of the drift and be conducted to the face of the main entry and divided to the right and left cross entries, returning to the furnace along the face of the workings, thus giving the first of the air direct to the men and causing the return air to pass through the old workings after visiting all the miners; this will make the ventilation healthy and satisfactory. The mine has one entrance at present, which is well secured by square sawed timber 10x10 inches, which is well set and lined. The coal is hauled out at present by mules, but another entrance will be made close to the present one and machinery put in to deliver the coal to the surface. On my next visit I expect to find the improvement so great at this mine as to promise a largely increased product. The coal here is a little thicker than at Mine No. 2, the undermining softer, and the roof of the very best. The entries are high, dry, wide and clean, and in excellent condition. Mining is paid for at the rate of 74 cents per ton in summer and 84 cents in winter for screened coal. Product consumed west and northwest. Medlin & Crysto operated a mine at Mendota during the fall and winter to supply local trade.

PEARL CITY POSTOFFICE, IOWA.

Star Coal Co. Mine located at Pearl City, near the Iowa line. It is entered by a drift and ventilated by a furnace; coal 32 inches thick and worked on the room and pillar plan. The product is hauled away from the mine over a tramway for about a quarter of a mile, loaded on cars at Pearl City and shipped over the C. B. & K. C. railroad. Fourteen men employed.

Rogers Bros. Coal Co. Mine located half a mile from the depot. It is entered by a drift and ventilated by a furnace. Coal 36 inches thick and worked on the room and pillar plan. The product is taken from the mine in wagons, loaded on cars at Mendota and shipped over C. B. & K. C. railroad. Fifteen men employed.

UNIONVILLE POSTOFFICE.

Emporia Coal Co. James Price, manager. Mine located one and one-half miles north of Unionville, and has shipping connection with the C. B. & K. C. railroad. Shaft 110 feet deep; equipped with first-class machinery for hoisting. Ventilation is furnished by a 10-foot fan with the best results. I inspected the mine on the 9th of November, 1899, and found it in excellent condition, with the ventilation above the requirements of the law, with machinery, cages, ropes, safety catches and covers in good repair. A fan was erected during the past year to ventilate the mine in place of a furnace, which is well set and giving entire satisfaction. Made another inspection on the 21st of April and found the mine in fine condition, with the ventilation satisfactory. Entries are high, wide, dry, and very clean, and the mine well taken care of. Coal 32 inches thick and worked on the room and pillar plan; 60 and 40 men at work, respectively, at dates of inspection. The same prices are paid for mining here as that paid at the Blackbird and at the Mendota mines. The product is shipped west and northwest. There are several parties operating mines at different points in this county during the fall and winter to meet the local demand. The same seam of coal is found running under a very large area of Putnam county and crops out in the hills and low places. Nearly every farmer for miles east and southeast of Unionville has a coal bank on his land and during the winter hauls it into the city, where it finds a ready market. The coal is of good quality for all heating purposes and it burns readily.

ROLLS COUNTY.

Production, 20,956 Tons.

PERRY POSTOFFICE.

Fitzgerald Bros. Coal Co. Mine located one and one-half miles north of Perry and has shipping connection with the Hannibal & St. Louis railroad. Shaft 60 feet deep and operated by horse power for hoisting. Ventilation is furnished by a furnace, with very fair results. Coal 26 inches thick and worked on the longwall plan; mining is paid for at the rate of 86 cents per ton, and 20 men employed. The coal is of a very fine quality, and finds a ready market at Hannibal and other towns along the road.

Rolls County Coal Co. Mine located one and one-half miles north of Perry and connected with the Hannibal & St. Louis railroad. This mine is located within three-quarters of a mile of the above named one and is working on the same seam of coal and after the same

method in mining. This is also a shaft. It is 45 feet deep; hoisting by a horse and ventilated by a furnace. Thirty men employed. The product is shipped to Hannibal and other local towns along the line.

RANDOLPH COUNTY.

Production, 303,133 Tons.

Randolph county, as may be observed from its output, is one of the largest coal producing counties in the State; the coal measure formation underlies its entire surface and within its boundary lines there is doubtless a greater abundance of coal than is contained in any other one county in the State. The land lying between what is known in the Geological Survey of the State, as the grand divide on the east, the Middle Fork of the Chariton river on the west, and the county lines on the north and south, is nearly all underlaid by a vein of coal averaging about three feet nine inches in thickness, with the exception of an occasional water trough or fault of dislocation from effects of deundation. This territory comprises an area of 150,000 acres of workable coal lands, varying in depth from the surface at Huntsville, where the mines are entered by drifts, to 175 feet, which is the depth at the Higbee mine, with an estimated available tonnage of 500,000,000 tons.

The coal is distinctly of the bituminous variety and of excellent quality, more especially does it excell in its steam-producing qualities. The coal formation is classed as the lower coal measure, though the area exposed is comparatively limited. Its economic importance far exceeds that of the succeeding divisions, since it is here that the most productive coal beds occur. There are two other veins of coal above, which are 10 inches and 18 inches in thickness, respectively, and these latter veins underlie almost the entire county, but cannot be profitably worked so long as a 4-foot seam is so convenient. While mining has been vigorously prosecuted in the county for the past thirty years, with fully five million tons of coal mined, brought to the surface and disposed of; yet comparatively mining is in its infancy and the coal simply tapped. While a few of the older mines have been worked out and abandoned, there are several new and larger mines being opened upon an extensive scale, and barring labor troubles we fully expect to see Randolph county taking third place in the rank of coal producing counties in our next or fifteenth annual report. During the year ending June 30, 1900, the mines of this county produced 303,133 tons of coal (this amount would have been doubled but for the enforced idleness of some of the most productive mines). The output was sold at the mines for \$358,274. There were 17 mines operated during the year,

employing on an average 706 men. The most extensive mines are located at Elliott, Higbee and Huntsville, but there are other mines throughout the county operating on a small scale during the cold weather to supply home demand. Following is a description of the principal mines, together with a statement as to their location and the condition in which they were found at dates of inspection:

ELLIOTT POSTOFFICE.

Elliott Coal Co. J. C. Fleming, superintendent; George Morris, foreman. This company owns and is operating three mines in the surroundings of Elliott, all of which have shipping connection with the M., K. & T. railroad. Mine No. 1 is located at Elliott. It is a shaft 145 feet deep, and equipped with first-class machinery for hoisting. The mine is ventilated by a fan, which was made by the Duncan Foundry and Machine Works of Alton, Ill. The fan is set on top of the fan shaft about 1,000 feet from hoisting shaft. It is 12 feet in diameter, with 8 blades 36x36 inches square and worked by an engine coupled directly to the fan shaft, running at a speed of 80 revolutions per minute (at date of first inspection) and exhausting 33,730 cubic feet of air from the mine in same time, measurement taken at bottom of upcast. I made three inspections of the mine during the year and found it in very fair condition at each visit. The ventilative current on the south side was found above the demands made by law, and was conducted practically around the face of the workings, but it was overloaded with work, and much vitiated with black damp when it reached the last of the miners; the current of air, however, is so strong that as it sweeps by in such volume, the impurities it carried was but slightly noticed. The company is not indifferent to the necessity for a betterment of the air and it is making every effort possible in that direction by closing up all of the old places and conducting the air as fresh and pure as it can and as direct to the miners as conditions will permit. When it is remembered that this is the oldest mine now in operation in the State, it may, under the circumstances, be considered a well ventilated mine. Inspections made at this mine December 5, and June 11 both showed a deficiency in ventilation in one entry on the north side; this will be remedied by the work now in progress with that aim in view, as air courses are now being driven, one from the east entry off of the first north entry to intersect another air course driven from an east entry off of the first north of the west entry; when these two meet the route of the air current will be greatly shortened and the difficulty overcome. This mine remained idle fully two-thirds of the time during the past year by order of the miners' organization

and it suffered considerable damage during that time. The situation was so uncertain that the company had not the inclination to keep up repairs, not knowing when, if ever, it would be allowed to run the mine, as outside interference caused the suspension. For further explanation concerning suspension of work see remarks on strikes. Coal 4 feet thick and worked on the longwall plan; 80 cents per ton is paid for mining clean coal. From 100 to 140 employed. On last inspection I noticed the timber at the bottom of the shaft broken and in a dilapidated condition, also the curbing out of line and broken in several places. Instructions were given to the company to replace timber and curbing at once, and on or about the 7th of July Mr. Fleming, the superintendent, kindly notified this office that my instructions had been complied with, and that the shaft was now in first-class condition.

Santiago Mines. These mines are located about three miles southwest of Elliott, and about the same distance west of the railroad. The coal is hauled from the mine over a tramway by a small locomotive engine to the railroad, here again it is hauled over an elevated trestle by a cable rope system, and dumped into cars. A large building has been erected at the railroad to land and dump the coal into a shaker screen, where it is divided into different grades or sizes; three tracks are constructed to load as many different grades of coal at one time. Both mines are entered by drifts and ventilated by furnaces, with excellent results. Coal $4\frac{1}{2}$ feet thick; mined by blasting it off of the solid and worked on the room and pillar plan. The roof is of the slate and soapstone variety, and makes an excellent top, requiring very little timber to keep it secure. The entries are high, wide, dry and clean and in good condition. Sixty men employed and paid 55 cents per ton for mining unscreened coal.

HIGBEE POSTOFFICE.

Higbee Coal Co. Wm. Walton, superintendent; Hiram Hyde, foreman. Mine located half mile west of Higbee, and connected with the Chicago & Alton railroad. Shaft 175 feet deep, and operated with good machinery for hoisting. Ventilation is furnished in a satisfactory manner by a 10-foot fan, which was running at a speed of about 100 revolutions per minute at dates of inspection and forcing 13,320 cubic feet of air around the mine in same length of time at one of my visits and 11,050 cubic feet per minute at date of the other examination. I made three inspections here during the past year and found the ventilation very fair at each inspection. All the work is confined to the north side of the shaft; the ventilative volume of air is divided

near the shaft bottom to the east and west sides; the current to the west passing over an overcast and ventilating the works on the west side meets the other current from the east side at the face of the north entry. The ventilation is greatly retarded in this mine on account of the roof, which varies in the character of its formation from that of slate to sandstone and soapstone; it is soft and of a friable nature, and is not a desirable roof for the longwall system of mining, as it often breaks down at the face of the workings, thus interfering with the free passage of the air current and causing a deficiency nearly all the time in some one part or the other of the mine. Spontaneous combustion takes place at times in the refuse of the mine, causing great heat, and vitiating the air current. Indeed I consider this one of the most difficult mines in the State to ventilate, but every effort is made by the company to comply with the letter of the law. Coal 44 inches thick and worked on the longwall plan; 80 cents per ton is paid for mining screened coal; 125 men employed. The product is mostly consumed by the railroad company in coaling locomotives, 10 chutes having been constructed here for the purpose.

Interstate Coal Co. Wm. Walton, superintendent. Mine located $1\frac{1}{2}$ miles south of Higbee and connected with the M., K. & T. railroad. Shaft 110 feet deep and equipped with first-class machinery for hoisting. This is the best equipped mine in the county, and the largest coal producer, but very little work was done here during the year just closed, owing to instructions from the miners' organization not to sell or deliver coal to the M., K. & T. railroad. As the railroad trade constituted three-fourths of the trade of the mine, this compelled the coal company to close down, for it could not operate the mine and pay current expenses on what little local trade it had, and the mine is idle at present writing.

HUNTSVILLE POSTOFFICE.

The Hunt Bros. are operating a mine at Huntsville in the corporate limits of the city. Mine entered by drift and ventilated by a furnace. Coal 4 feet thick and worked on the room and pillar plan. The product is taken away in wagons and consumed in the vicinity of Huntsville.

J. J. Lewis operates a mine at Huntsville to supply local demand. Mine entered by a slope and ventilated by furnace. Coal 4 feet thick and worked on the room and pillar plan. Product is consumed in the vicinity.

W. E. Mitchell. Mine located at Huntsville, north of court house. *'s entered by a drift and ventilated by a furnace. Coal 4 feet thick,*

worked on the room and pillar plan, and is taken away from the mine in wagons, loaded on cars at Huntsville and shipped over the Wabash railroad. Ten men employed in winter, and paid 75 cents per ton for mining clean coal.

J. F. Robinson. Mine located in same locality, working same seam of coal as the other mines and on the same method, paying the same price for mining. Four men employed. Product consumed in the vicinity.

MOBERLY POSTOFFICE.

Enterprise Coal Co. Mine located about 3 miles northwest of Moberly. The mine is entered by drift and ventilated by furnace. This could be made a productive mine if favored with facilities for shipping, but as it is located three miles away from the railroad its output is confined to the local consumption. Coal 4 feet thick and worked on the room and pillar plan. Ten men employed in winter and five in summer, and paid 75 cents per ton for mining clean coal.

Harry Ward. Mine located two miles northwest of Moberly. Shaft 88 feet deep; hoisting by a horse. Coal 45 inches thick and worked on the room and pillar plan. Ventilation is furnished by a small furnace. Coal consumed at Moberly and surroundings.

Cooper & Stackhouse Coal Co. John Sneed, superintendent. Mine located one mile west of Moberly, and connected with the Wabash railroad. Shaft 125 feet deep and operated by steam power. Ventilation is furnished by a furnace with very poor results. I made four inspections of this mine during the past year; first inspection made on the 18th of August, 1899, and the ventilation was found deficient in every part of the mine, with the air courses nearly choked up with dirt. Instructions were given the company to clean and enlarge the area of the airways and provide for more air in the mine, within 15 days, otherwise the mine would be closed. Also discovered that the safety catches were in bad condition and the cover off of one of the cages. One of the pulley wheels was broken and cobbled up with bolts and the drum in a dangerous condition. In fact, the mine, with all of its equipment, was in a deplorable condition and the company was notified to remedy all defects at once. I made another inspection on the 6th of September and found the airways partly cleaned and the ventilation some better, but not satisfactory, and further instruction was given to the company to have all air courses cleaned so as to admit enough air to ventilate the mine properly. Safety catches had been repaired and preparation was being made to replace the drum by a new one. New pulley wheels had been put in and men made safe in

riding up and down the shaft on a cage that was covered. On my next visit to the mine I found that the plant had burned down and was being rebuilt. On the 4th of April another inspection was made and again found the ventilation deficient. I called a meeting of the miners at this visit and consulted their wishes as to what my action with the company should be. Had I consulted my own views entirely I would have called the men out and ordered the mine closed down on the spot. Discovering that an air shaft had already been started (and down 50 feet) at the face of the workings, which would as soon as completed make the air satisfactory, and after a consultation with the miners, it was decided that the men continue work for 20 days as the limit allowed the company to have the air shaft down and communication with the interior mine made. When the limit fixed had expired the miners wrote to me under the seal of their local union, asking an extension of 30 days time on account of delay in sinking caused by the large amount of water encountered. The extension was granted under the circumstances, the shaft was shortly after completed, connection made and the ventilation is now satisfactory. Coal 45 inches thick; worked on the room and pillar plan and pay 55 cents per ton for mining unscreened coal. Twenty-five men employed.

Jones & Davis Coal Co. David Davis, manager and superintendent. This company is operating four mines in this county, all of which have shipping connection with the Wabash railroad. All the mines are working the same vein of coal, and the same method of mining is practiced at each mine, and under the same supervision.

Mine No. 1½. James Armstrong, foreman. Mine located two miles east of Huntsville. Shaft 100 feet deep, equipped with machinery for hoisting. Ventilation furnished in a very satisfactory manner by a 12-foot fan. Made an inspection of the mine on the 5th of September, 1899, and found it in a very poor condition. The miners had been out on a strike for about two months on the demand made for a recognition of their union and signing the scale of prices, during which time the mine remained idle and suffered considerable damage during the suspension of work, but at date of this visit the men were at work cleaning it and making ready for operations. Inspected it again on the 4th of April and found the ventilation good and the mine otherwise in good condition. The south side had been abandoned and all the work was confined to the north side. Coal 3 feet 10 inches thick and worked on the room and pillar plan, paying 55 cents per ton for mining unscreened coal. Twenty-five men employed.

Davis, original mine. Robert Moss, foreman. This mine is at half way between Huntsville and Moberly; it is also a

shaft opening and operated by good machinery for hoisting. Made an inspection of the mine on the 6th of September and found the ventilation very fair, but the mine was not otherwise in good condition, as it had been standing idle about two months on account of the miners being on strike. I inspected it again on the 4th of April and found the mine in good condition and the ventilation satisfactory. It was discovered on this visit that the south entry had been driven through the fault into good coal, and new works opened out on that side. Coal 3 feet 10 inches thick; worked on the room and pillar plan; paying 55 cents per ton for mining. Fifty men employed.

This same company is also operating two mines about half a mile north of the railroad. The coal is hauled up to the track by machinery over a tramway built on a trestle; it is landed on top of a large building erected along side of the railroad and the coal dumped into a screen which cleans and separates it into different grades and sizes ready for shipment. Both mines are entered by drifts and ventilated by the aid of furnaces. The coal at both of the mines is about 4 feet thick and worked on the room and pillar plan; 55 cents per ton is paid for mining run of mine coal. The coal here is overlaid by a good roof and is easily secured by timbering it; the mines are well ventilated and in good condition. About 100 men employed at both mines. The product of the mines of this company is shipped to several local towns along the road, but the railroad company consumes a large portion of it in their engines, as it is an excellent steam coal. Wm. Thomas, foreman.

There are several other small mines in this county located at Jacksonville, Renick, Thomas Hill, Rolling Home and Yates, which I had not time to visit, but the product of the mines will be found in the statistical table of the county in this report, with all other information concerning the coal and mines.

RAY COUNTY.

Production, 243,592 tons.

Ray county ranks high among the large coal producing counties of the State, and contains large areas of coal lands at present undeveloped. The only coal as yet developed is that lying along the railroads that run through her coal field, while thousands of acres are yet untouched in the interior of the county awaiting the prospector and the miner; but this will not likely occur until the coal which is now in close proximity to the railroads is exhausted. The principal mines are located at Camden, Fleming and Richmond; however, mining is carried on during the winter season at Harding, Knoxville, Georgeville and Lakeview, the greater number of which are worked on a small

scale to supply the home trade. The production of the mines for the year just closed was 243,592 tons of coal, and the average price per ton received at the mine was \$1.47. The number of men employed in the mines averaged 893 during the winter months, and 618 during the summer season. Of the 33 mines operated this year, all are worked on the longwall plan, and the movable face track used. Two inspections were made this year of all mines in this county coming under the jurisdiction of the mining laws. Following is a description of each mine, together with a statement as to their location, and the condition in which they were found at dates of inspection:

FLEMING POSTOFFICE.

Murlin Coal Co. W. E. Murlin, superintendent; Harry Wyett, foreman. Mine located at Fleming and has shipping connection with the Wabash railroad. Shaft 70 feet deep, and operated with good machinery for hoisting. The mine is ventilated by a 12-foot fan and giving good results. The ventilative volume comes down the main shaft and travels over the north entry as far as the first east off of the north, where it is turned and conducted over the first east entry into the first north off of the east until it reaches its terminus; here it is divided to the east and west sides travelling along the face of the works, furnishing plenty of fresh air to every part of the mine where men are at work; thence passing abandoned workings on its return to the up-cast after serving the men at work. I visited this mine on the 3rd of October, 1899, but found it idle, the men being on a strike, and no inspection was made. Visited the mine again on the 8th of March and found that the Murlin Coal company had leased and been operating it since the middle of October; that it had signed the miners' scale and was operating it as a union mine. I made a thorough inspection at this date and found the mine in an excellent condition, with the ventilation above the requirements of the law. The entries are high, wide, dry and clean. The airways are wide and roomy, with area sufficient to admit of large volume of air to pass at moderate speed. New safety catches were attached to cages when the present operators took charge of the mine and new bonnets were put on cages. These improvements placed all the machinery and safety appliances in a safe condition. Coal 18 inches thick, worked on the longwall plan, with the moveable face track in use. Ninety-five cents per ton is paid for mining and about 80 men employed.

HARDIN POSTOFFICE.

There are quite a number of parties operating mines on a small scale during the fall and winter in the surroundings of Hardin, Lake

ew and Norbourne. The mines are located in the bluffs and entered drifts; ventilated by small furnaces. The coal is the same seam as at so extensively worked at Richmond and in other parts of the county; thickness of the coal, mode of mining and price paid for digging is the same as that at other mines. The names of all operators, output of the mines, with other information will be found in the statistical table of Ray county.

KNOXVILLE POSTOFFICE.

The Major Grimes mine, located at Knoxville. Shaft 190 feet deep; hoisting by horse power. Coal 20 inches thick and worked on the longwall plan. Mine only operated during the fall and winter, and the product is consumed in the surrounding country.

RICHMOND POSTOFFICE.

Chas. Crispin. Mine located at Richmond. Shaft 80 feet deep; operated by horse power. Coal 22 inches thick; worked on the longwall plan and paying 95 cents per ton for mining. Ten men employed in the fall and winter, and the product consumed at Richmond and surroundings.

The Black Diamond mine is located in close proximity to the Crispin mine, and has an underground connection with the latter. Both mines are working the same seam on the same method and paying same price for mining. This shaft took fire last fall from the furnace and the men had to go out by the Crispin mine. The entire curbing and top buildings were burned, but no other damage done. Mine operated to supply wagon trade.

Robt. Hayson. Mine located at Richmond one block south of court house. Shaft 80 feet deep and hoisting by a horse; same coal seam worked here as at other mines and all other conditions the same. Product consumed in the immediate locality.

Ottman & Swopes operates a mine near Richmond during the fall and winter to supply local demand.

A. Blair operates a mine near Richmond in the fall and winter to supply local trade. Mine entered by shaft 30 feet deep, and hoisting by horse power. Coal and method of mining same as at other mines.

Hubbell Coal Co. Mine located northwest of Richmond, and has shipping connections with the St. Joe branch of the Santa Fe railroad. Shaft 110 feet deep and hoisting by a horse. Ventilation is furnished by a furnace, with good results. Made two inspections during the year and found the mine in good condition on both visits, with the ventilation above the demands of the law, and everything about the mine sound and satisfactory except the condition of the cages; the safety catches

were discovered out of working order, and one of the cages was running without a cover over it. Having found the same conditions existing on several visits October 5th and on a special visit on the 22nd of December, and then again on the 6th of March, and after repeatedly requesting the company to remedy these defects, without compliance, the following letter was mailed to the company:

Wm. M. Hubbell, Esq., Richmond, Mo.:

Jefferson City, Mo., March 16, 1900.

Dear Sir: On my visit to your mine on the 6th inst. I discovered that after promising me to place bonnets (or covers) on your cages that you have failed to do so. On the 22nd of last December you promised me that you would put covers on your cages immediately. I have hereby to give you notice that unless this improvement is made at once I shall bring suit against you for violating the mining laws. You are also cautioned concerning the necessity of having the safety catches on your cages always in working order and ready for action. Under no consideration are you allowed to fasten or key back the catches to prevent them from acting, for no one can anticipate an accident to the cage or a broken rope. Your prompt compliance will oblige you respectfully,

CHAS. EVANS,

State Mine Inspector.

To the above Mr. Hubbell answered as follows:

Chas. Evans, Esq., Jefferson City, Mo.:

Richmond, Mo., April 2, 1900.

Dear Sir: Your letter to hand some time ago, and I will say that all of your requests have been complied with, and was shortly after your last visit. Yours truly,

W. M. HUBBELL

Coal 22 inches thick and worked on the longwall plan, using the moveable face track; pay averages 95 cents per ton for mining. Thirty men employed.

Mercantile Coal Co. Frank Atwil, superintendent. Mine located at Richmond and connected with the St. Joe branch of the Santa Fe railroad. Shaft 110 feet deep, and operated by steam power. This is known as No. 7, and is one of the oldest mines in the county, and very extensively worked. The ventilation is furnished by the aid of a furnace which is (like that at several other mines in this county) located at the bottom of the hoisting shaft, exhausting through an air chamber partitioned off from one end of hoisting shaft, a very crude and impractical method, especially at this late date, when there are so many improvements employed in mine ventilation. A separate shaft should always be provided for the ventilating appliance, be it a fan or a furnace, as a larger area for the air to pass through can be obtained. I made two inspections of this mine during the past year and found it in a fair condition. The air current passes down the hoisting shaft and travels over the north entry to its terminus, where it is divided to the east and west, passing the working face on its route to the furnace. The ventilation was found satisfactory at both visits, but I noticed that the furnace was fired up to its extreme limits and the doors kept closed, and with similar attention given the furnace at a

times and continuously the mine may be kept in a healthy condition; should the fire get low or the doors be left open the men will suffer. With the extensiveness of the underground work of this mine and the distance the air has to travel through small and contracted airways the furnace is hardly adequate to the successful ventilation of this mine. I am pleased to state that the company is doing all in its power to comply with the requirements of the law regarding ventilation in mines, and as far as we know gives satisfaction to the miners, as no complaint has been received at this office since date of inspection. Coal 22 inches thick; worked on the longwall plan, with the movable face track in use, and pay 95 cents per ton for mining. Seventy-five men employed. Product shipped and consumed at St. Joe.

Pickering Coal Co. Mine one mile northwest of Richmond, and connected with the St. Joe Branch of the Santa Fe R. R. by a spur switch. Shaft 110 feet deep; operated by machinery, and ventilated by a furnace. The mine is well ventilated, and practically operated. The air current is conducted around the workings in two divisions, and supplies plenty of fresh air to all parts of the mine. An underground connection is being made between this mine and No. 10, which will always be available for the employes to travel through in case an accident should happen in either of the mines. Thickness of coal, mode of working and price paid for mining is the same here as in other mines in this locality; 30 men employed. Product shipped to St. Joe.

Pence & Calnen Coal Co. I. Calnen, superintendent. Mine located southwest of Richmond, and connected by a spur switch with the St. Joe Branch of the Santa Fe R. R. Shaft 80 feet deep, and equipped with very fair machinery for hoisting. This mine was formerly operated by horse power, but during the past summer a steam plant was erected to take the place of the horse power apparatus. A new pit head has been built, and new cages and guides put in. These improvements has enabled the company to increase its output to almost double its previous record. I made my first visit to it on the 7th of October, 1899, and found the mine in a very fair condition, with the ventilation satisfactory. A temporary furnace had been erected in the bottom of the air shaft, and was giving fair results; but as the air shaft is also intended for an escapement shaft, the law forbids the use of a furnace at the bottom of the escape. The attention of the company was called to this oversight, and it agreed to replace the furnace by a fan, which it did, and at this time is in operation, making it one of the best ventilated mines in the State. I also noticed on this visit that the hoisting ropes, which the company bought with the machinery had been used a *great deal, and badly damaged*; these were condemned, and the com-

pany instructed to replace them at once. In fifteen days after my visit to the mine, this department was informed by one of the employes that no effort had been made to replace the ropes, and that they were in dangerous condition. Not being able to visit the mine then, a letter was mailed to the company, calling its attention to the condition of the ropes and of its failure to comply with my instruction, and insisting on a speedy compliance, quoting the law and pointing out the result in case an accident should occur on account of a defective rope, to which letter Mr. Pence answered as follows:

Richmond, Mo., October 26, 1899.

Mr. Chas. Evans, State Mine Inspector, Jefferson City, Mo.:

Dear Sir: Your letter of the 25th, on my desk, this day, relative to the placing of ropes at our mine No. 6, Richmond, we have replaced one of the ropes last Sunday, and the other one will be put on as soon as needed.

We get at these things just as soon as we can at all times, and I think you will have better results and better feelings toward you if you will kindly write us about anything that we are not complying with than by writing some one else.

If you think we will tell one of them things about any matter get it on paper, and then you have it where there is no crawfishing out of it.

It is more our duty to avoid accidents than it is yours to look after them, and when you want anything done at our mines, if you will write this office I do not think you will have to take it up with anyone else.

Yours truly,

WILLIAM PENCE.

It will be seen by reading the above letter that Mr. Pence denies the Mine Inspector the rights of receiving information from the miners concerning the condition of the mines and its surroundings wherein they work, and from whom they expect help and relief when their health and life is endangered. The Mine Inspector having so many mines to look after cannot visit them as often as conditions require, and he is greatly aided by correspondence with the miners, and the following letter was sent in answer:

Jefferson City Mo., October 31, 1899.

Mr. Wm. Pence, Richmond, Mo.:

Dear Sir: Your uncalled for, impertinent and insulting letter of 26th inst. is received and noted. In reply to the same I will first note the acceptable part of your letter—that is, that you have replaced one of your old holsting ropes with a new one. I now insist upon your replacing the other old rope with a new one at once. There was no mystery concerning my act in condemning your old ropes, for this I did October 6th to you personally; both ropes were condemned. You seem to ignore my instructions; now if a serious accident results because of this defective and condemned rope that you retain, you would not only be liable for the accustomed damages, but to a criminal prosecution as well. I claim and will exercise the right and privilege to correspond with whom I please in securing information relative to the condition of the mines of this State; it is a part of my business to acquire the largest possible acquaintance with the condition of the mines, and when I do this in an honorable way, from the very parties most interested and for whose protection I was appointed, I fail to see any breach of decorum or of my official duty. You do not consider the great number of mines that I am compelled to look after and the impossibility of covering this large field without any assistant, as thoroughly as it should be done without bringing to my help all the available means I can command. For whose benefit was the Mine Inspector appointed and the laws governing his actions made? Was it to

shield the operator from the demands made by miners for protection or was it to provide for the protection of the miner against those operators who do nothing, unless forced in supplying the needed air and safety appliances? In the absence of that necessary care and attention on the part of some operators, to whom should I look to for suggestions concerning the safety of the mechanical appliances, ventilation and other matters of a like nature—the operator or the miner? The truth is that no mine official that ever lived knew or knows so much that he could not receive valuable suggestions from a great body of miners, and where the mine official fails to remedy the troubles pointed out, the miner has no other recourse than to seek the aid of the Mine Inspector, whose duty in accordance with law it is to correct any mismanagement. The reliable miner who comes in actual and continued contact day after day with the conditions of a mine, has a keener perception of right and wrong conditions than any one else can have, and where he has several times each day the consciousness of being suspended between life and death by a single rope, he scents the possibility of danger more readily than those who are not thus exposed. I feel myself under many obligations to the miners for very many valuable aids in the performance of my duty and much prefer the judgment of a reliable miner in matters pertaining to existing conditions in a mine than that of any one else. The miners employed in your mines are well informed concerning your indifference and indisposition to comply promptly with instructions given by the Inspector; for they have had occasion to come out of your mine oftener for the want of more and better air than at any other mine on the Richmond track. It becomes to the miner in view of his duty to himself and family an imperative obligation to notify the Inspector when he feels that either his life or health is endangered.

I have yet to find the miner who, as you say, "Crawfished" on any statement made over his own signature; but I invariably find conditions existing in a mine as described by them. With but few exceptions you have as good and as reliable set of men working in your mines as can be found in the State, and I have as much confidence in their truth and veracity as I have in your word or of any class of men.

You will please inform me at once what improvement you have made in ventilating Mine No. 3, near Camden. I instructed you on the 4th day of October to arrange to supply a better ventilation for said mine. You now have an opportunity to exemplify the good results that will ensue as assumed in your letter, by promptly answering the above question. In the performance of my official duties my personal feelings do not interfere in the least. You should not assume because you employ a number of miners, out of whose service your sole aim is to make money, that you can control them so far as to prevent them from speaking or writing in the effort to protect themselves against harm and danger.

Respectfully,

CHAS. EVANS,

State Mine Inspector.

I made another inspection on the 7th of March, and found the mine in good condition, with the air double the amount required by the law, with all the safety appliances in a safe condition, and it is now one of the best mines in the county. Coal 23 inches thick; worked on the longwall system, using the moveable face track; paying 95 cents per ton for mining; 90 men employed. Product shipped north, to St. Joe.

Richmond & Camden Coal Co. John Gibson, general manager and superintendent; Robt. Gibson, assistant. This company owns seven mines in this county, but only six were operated during the past year. Two of the mines are located at Camden and five are located near Richmond. The mines are all worked on the longwall plan, well ventilated, and now fairly drained, with good, high roadways, and their general con-

dition very good. The thickness of the coal at the Camden mines is about 18 inches; it is underlaid by fire-clay mining, and directly overlaid by a strong black slate, which comes down with the coal, and is used to build walls along the roadways to secure the roof, as very few props are used in these mines. The coal in the mines near Richmond is about four inches thicker and is overlaid with a strong roof, which is a great advantage in the economic operation of the mines. A moveable face track is used at all the mines, which is a great convenience to the miner in loading coal, as it saves the extra labor of rehandling it. All the mines are operated as Union mines, and a uniform price of 95 cents per ton is paid for mining. The mines at Camden have shipping connection with either the Wabash or the Santa Fe railways, while the mines near Richmond are connected for shipping facilities with the St. Joe Branch of the Santa Fe R. R.

Mines Nos. 1 and 2 are located one mile west of Camden, each connected with the Santa Fe and Wabash railways. Both are shaft openings, and equipped with good machinery for hoisting. An underground traveling way connects the two mines, so that either one may act as an escapement for the other in case of accident. Both mines work the same coal face, ventilated by the same air currents, and may be considered as one mine with two openings. A fan located at mine No. 2 furnishes ventilation for both mines with very satisfactory results. I made two inspections of the mines last year, October 4th and March 8th, and found the ventilation extra good, and the mines otherwise in very fair condition. Ropes, cages, safety catches and bonnets were found in good condition. No. 1 has 10 chutes erected to coal engines, and a large proportion of the product is consumed by the Wabash Co. About 80 men employed at both mines.

Mines Nos. 4 and 5 are located south of Richmond, and have shipping connection with the St. Joe Branch of the Santa Fe R. R. These two mines are connected by an underground roadway, so that either one may act as escapement for the other in case of accident. Both mines are ventilated by the same fan, which is set on top of an air shaft near mine No. 5, forcing the air into the mines.

Mine No. 4 is a shaft 70 feet deep, equipped with very good machinery for hoisting. Mine inspected on the 6th of October, and found in good condition, with the ventilation very satisfactory in quantity, but growing very impure in quality before it reaches the last of the miners. The air current has a long distance to travel from the bottom of the fan shaft before it reaches any of the miners in this mine, and

at too over stagnant water, making it heavy and sluggish; then to
ly 75 men with air on its long route overloads the current with

work and renders it just that much more impure before reaching the last group of miners on the south side; this air should be divided into two currents. Made another inspection on the 7th of March, and found the mine in about same condition as on former visit with about same amount of men at work. On this visit I discovered a check in the air on the south side of the west entry. A defective piece of roof was struck, and a block of coal was left under it for support; this necessitated cutting around a corner before the current circulated around its original course; 80 men employed. Chutes erected here to coal engines.

Mine No. 5 has also a steam plant; shaft 75 feet deep. The same description of the underground working applies here as that given for other mines in this county. The fan is 12 feet in diameter, set near this plant and running at a speed of 80 revolutions per minute. The air current is divided at the bottom of the fan shaft to the east and west, the current going west travels to mine No. 4, while the other current ventilates this mine; it passes over the east entry, and is conducted to the extreme north part of the mine, passing along the face of the workings and returns to the east side of mine No. 4 from the south entry, where it makes its exit. Both of these mines have been in operation for a great number of years, are driven in a long distance, and in passing under ravines where the covering is shallow, a large amount of water has been encountered, but it is easily handled with steam pumps. I inspected this mine on same dates as mine No. 4, and found the ventilation entirely satisfactory on both visits; 60 men and three mules employed.

This company sunk a shaft and opened out another mine during the past year near Richmond, which has shipping connection with the St. Joe Branch of the Santa Fe R. R. This is also a steam plant, the machinery from old mine No. 3 having been removed and set up here. The machinery is set on good rock foundation, and enclosed by new and substantial engine and boiler house. The head gear and top buildings are all new and well constructed for every convenience and economy, and taken altogether it is a well-constructed plant. Shaft 120 feet deep, and ventilation is produced at present by a furnace, but we understand that a fan will be erected here in the near future. The mine is opened in close proximity to old mine No. 6, and underground connection is being made with it, which will be used as an escapement for this mine in case of accident. Thickness of coal, mode

of working and price paid for mining is the same here as at other mines; 30 men employed.

Mine No. 9 is located $\frac{3}{4}$ of a mile northwest of Richmond, and connected with the St. Joe Branch of the Santa Fe R. R. Shaft 100 feet deep, and the only mine operated by this company where hoisting is done by horse power. Ventilation is furnished by a furnace, which was giving good results at dates of inspection, October 5th and March 6th. The mine is very dry, with good, high roadways; 30 men employed.

Mine No. 12 is located $1\frac{1}{2}$ miles northwest of Richmond, and is equipped with good machinery. The shaft was sunk in the fall of 1893; coal was struck at a depth of 125 feet, and an elegant plant was erected at the mine; but unfortunately the shaft was sunk on a faulty piece of coal, which is very low and irregular. Entries have been driven in all directions to test it, with very poor satisfaction. But I hope success will finally reward the enterprise after spending so much money.

Mine No. 8. This mine is located within the city limits of Richmond, and is operated by Mr. Wm. Wilson. Shaft 110 feet deep, equipped with machinery for hoisting, and connected with the St. Joe Branch of the Santa Fe railway. Ventilation is produced by a furnace, which is inadequate to ventilate the mine properly. The mine has been very extensively worked, and the air current has a long route to travel over small and contracted airways. This mine has been leased for a number of years. It has been in litigation, lying idle for months at a time, and consequently neglected. Now, that it is old and nearly worked out, no remedy can be recommended other than to attend to doors and keep the furnace fired up to its full capacity. Mr. Wilson, superintendent, being one of the most practical miners in the State, exercises every effort to comply with the requirements of the law. The coal at this mine, like that of the surrounding mines, is about 23 inches thick, and worked on the longwall plan, and pay 95 cents per ton for mining; 30 men employed. Product shipped north.

Mine No. 1 is located one and one-half miles north of Henry, and connected with the St. Joe Branch of the Santa Fe railroad. This mine is entered by a drift, and ventilated by a furnace, with a very fair result. The mine is making considerable water, which is handled by steam pumps, but the roadways are very wet in places. Thickness of coal, mode of working and price paid for mining the same as that of all other mines in the county; 40 men employed.

A. M. Fowler sunk a shaft on his farm last winter about two miles southwest of Richmond for the same seams of coal as that worked throughout the county, which was struck at a depth of 35 feet below

the surface. The mine was operated some little last winter. The coal was taken away in wagons, as the mine is located about 2,500 feet from the railroad, and no shipping connection had been made. Mr. Fowler owns 400 acres of land, which is all underlaid with coal, and a switch will doubtless be constructed and operation commenced on a larger scale.

Mine No. 3. This mine is located two miles east of Camden, and connected by a spur switch with the Santa Fe R. R. Shaft 50 feet deep; operated by machinery; ventilation is produced by a furnace, with very poor results. In fact, there is no furnace built at the mine or airways left open. The aircourse on the return of the air was found flooded with water, leaving no room for the air to pass. The mine was lately leased by Pence & Calnen of Richmond, who operated it during the past winter, and it is but just that I should mention here that these parties found the mine in a deplorable condition, and Mr. Pence promises to remedy every defect as soon as possible. Made two inspections last year, October 4th and on March 8th, and found the ventilation deficient at each visit; 40 men employed; paying 95 cents per ton for mining. Coal 18 inches thick, and worked on the longwall system. Product shipped to Kansas City and points west.

SWANWICK POSTOFFICE.

Williams Coal Co. Mine located at Swanwick, a station and a small mining camp five miles north of Richmond, and has shipping connection with the St. Joe Branch of the Santa Fe R. R. Shaft 105 feet deep; operated by horse power, and ventilate by a furnace, with good results at dates of visits. The coal is not so thick here as at the mines in the vicinity of Richmond, nor does it run so regular; but the same method of mining is employed and same price paid for mining. Product shipped north; 32 men employed.

ST. CLAIR COUNTY.

Production, 3,892 tons.

This county is situated in the range of the coal measure formation, and coal is being found and mined in nearly every township in the county, but only in a limited way. Mines were operated during the past year at Dottie, Appleton City, Johnson City, Osceola, Iuka Springs, Taberville, Tiffin and around Lowry City. The coal at Dottie, Taberville and Tiffin will run from three feet to three feet six inches

in thickness, and is obtained by stripping. At Appleton City the coal is 20 inches thick, and at Lowry City and Osceola about two feet. The covering over the coal is very shallow, and the largest part of the output is taken out by stripping. All information concerning coal mining in the county will be found in the statistical table in this report.

SALINE AND SCHUYLER COUNTIES.

Saline and Schuyler counties are very small coal producers, while both of these counties are underlaid by good workable seams of coal it is as yet undeveloped to any extent. There is a 4-foot seam underlying a large portion of Schuyler county near the Iowa line, and a few mines are operated near the head of the Chariton river. We expect to see productive mines opened out on this seam in the near future. For further information concerning coal in these two counties I respectfully refer the reader to the table on statistics in this report.

VERNON COUNTY.

Production, 229,343 tons.

Vernon county is located in the range of the coal measure formations, and coal is found and worked in nearly every township in the county, but the most productive mines at present are located in the surroundings of Panama. The coal belt found in Bates county extends throughout Vernon in a southeasterly direction, and extensive mines are soon to be opened in that section, but further southeast than the mines now operated. During the year ending June 30, 1900, this county produced 229,343 tons of coal, which was sold at the mines for a total valuation of \$241,653, and is the product of 13 mines, employing 405 men and boys, including miners and other employes in and about the mines. Following is a brief description of each mine, in connection with a statement as to the condition in which they were found respectively at dates of inspection:

ARTHUR POSTOFFICE.

Arthur Coal Co. Frank Williams, superintendent. Mine located $1\frac{1}{2}$ miles north of Arthur, and has shipping connection with the Mo. P. R. R. Mine entered by a drift, and ventilated by a furnace, with very good results. This mine was started from the bottom of a strip pit, where the covering had been taken off the coal until the material

over the coal reached a thickness that made it unprofitable to work that way. When a drift was driven under the ground and worked quite extensively. Coal $4\frac{1}{2}$ feet thick, and worked on the room and pillar plan, paying 50 cents per ton for mining unscreened coal. The coal is hauled a mile over a tramroad and dumped on cars near Arthur Station; 35 men employed.

PANAMA POSTOFFICE.

Bedford Coal Co. David Hughes, manager. Mine located near Panama, and connected with the Mo. P. R. R. Mine entered by slope, and ventilated by furnace. Coal four feet thick, and worked on the room and pillar plan. Paying 50 cents per ton for mining; 25 men employed.

RICH HILL POSTOFFICE.

Vernon Coal Co. J. Wise, superintendent, and Sid Haynes, foreman. Mine located at Panama, and has shipping connection with the Mo. P. R. R. Mine entered by slope and ventilated by a fan, with excellent results. All the work in the Vernon county end of the mine was confined to drawing back pillars at last inspection, May 21st, this part having been cut off by the new shaft at the head of the workings and located in Bates county. Full particulars of the plant will be found in notes on mines of that county.

Mine No. 21. Wm. Gresham, foreman. Mine located one-half mile east of Panama, and has shipping connection with the Mo. P. R. R. This mine, like all the other mines of the Rich Hill Coal Co., is under the supervision of Mr. W. B. William. This is a vertical shaft 87 feet deep, and equipped with first-class machinery for hoisting, draining and ventilating. Ventilation is furnished by a 12-foot fan in a very satisfactory manner. This mine is equipped with all the latest and best of improved machinery. The head-gear and top buildings are all new and well constructed for every convenience and economy. Cages are new and strongly built, and supplied with the latest improved safety catches and covers and new hoisting ropes put on. The shaft bottom is also constructed very systematically and convenient for the rapid handling of cars. The mine was opened out and prepared for a large output, but unfortunately the coal proved to be irregular and faulty, and this has kept the output from reaching the proportions expected from the splendid equipment of the mine; it will soon be worked out. Made two inspections last year, and found the mine in excellent condi-

tion at each visit. Coal between $3\frac{1}{2}$ and 4 feet thick, worked on the room and pillar plan; paying 55 cents per ton for mining run of mine coal; 60 men employed.

HARWOOD POSTOFFICE.

There are several parties operating mines on a small scale during the fall and winter in the surroundings of Harwood to supply local demand. The coal is found in the hills, and the mines are entered by drifts and slopes. For further information concerning these mines will refer the reader to the statistical table of Vernon county in this report.

KANSAS CITY POSTOFFICE.

Central Coal and Coke Co. David Mackie, superintendent, and John H. Williams, foreman. Mine located $1\frac{1}{2}$ miles south of Panama, and has shipping connection with the Missouri Pacific railway by a spur switch extending from the main track. Shaft 100 feet deep, and equipped with first-class machinery. Ventilation is furnished by a 15-foot fan, the same being located at the escapement shaft, and about 300 feet from the hoisting shaft, forcing and exhausting alternately in winter and summer, and giving excellent results at dates of inspection. This is a new mine shaft sunk and mine opened out during the past year, and at date of last inspection, May 22nd, there were about 200 men employed, with an output of 800 tons a day. The machinery, head-gear and top buildings of mine No. 9 were removed, remodeled and set up here, an escapement shaft sunk, a stairway erected in it and a fan set. I made the first inspection on the 16th of October, and found the ventilative current traveling in two divisions to the north and south side, but no permanent system of ventilation had been adopted at that date. I visited it again on the 22nd of May, and found the mine in excellent condition with plenty of fresh air in circulation throughout the mine. The volume of air was conducted in three currents at this date, one overcast being erected and still another one in course of construction which, when completed, will make this one of the best ventilated mines in the State. The coal seam has an elevation of about 33 degrees, and machinery is used in the mine to haul the coal from the dip entry. The mine generates some gas, but it is well taken care of, and caused to be diffused as fast as it is given off. Gasmen are employed to examine every part of the mine each morning before the miners go to their work, to see that the mine is safe. Shot-firers are *also employed to fire all shots after all the other employers have re-*

from the mine. Coal from five to six feet thick, and worked on room and pillar double entry plan, paying 50 cents per ton for mine-run of mine coal; 200 men employed. Product shipped west and southwest.

*TABLE VIII—Showing by Counties the Plant, Employees and Ton—
Year ending*

Counties.	Kind of opening.				No. mines operated.	Kind of power.				How ventila- ted.			Mode of working.	
	Shaft.....	Slope.....	Drift.....	Strip-plt...		Steam.....	Horse.....	Hand.....	Electricity	Natural..	Furnace...	Fan.....	Long-wall.	Pillar and room.....
Adair.....	5	2	4	...	10	2	6	3	...	4	5	2	3	2
Audrain.....	6	1	...	...	7	3	3	1	...	2	3	...	5	2
Barton.....	4	6	6	8	24	3	6	10	1	13	1	2	1	15
Bates.....	2	13	8	15	38	4	19	5	1	13	10	4	...	23
Boone.....	4	1	3	4	12	1	3	4	...	4	4	...	...	7
Caldwell.....	2	...	...	...	2	2	...	...	...	1	...	1	2	...
Callaway.....	4	...	2	...	6	1	3	2	...	5	1	...	6	1
Carroll.....	...	2	1	4	1	...	...	2	...	3	...	...	2	1
Cass.....	1	...	...	...	1	1	...	...	...	...	...	1	...	1
Cedar.....	...	...	4	3	7	...	...	4	...	4	...	...	...	4
Chariton.....	2	2	2	2	8	...	...	6	...	5	1	...	2	4
Clay.....	1	...	...	...	1	1	...	...	...	...	...	1	1	...
Cooper.....	...	...	1	...	1	...	...	1	...	...	...	1	1	...
Dade.....	...	1	1	...	2	...	...	2	...	2	...	...	...	2
Grundy.....	2	...	...	...	2	2	...	...	...	1	...	1	2	...
Henry.....	20	4	1	15	40	4	20	1	...	7	16	2	4	9
Howard.....	...	...	3	...	3	...	...	3	...	3	...	...	2	1
Jackson.....	1	...	...	...	1	1	...	...	...	...	...	1	1	...
Johnson.....	3	1	1	1	6	2	...	3	...	3	1	1	...	5
Lafayette.....	20	7	19	...	46	13	13	21	1	14	23	11	40	2
Lincoln.....	1	...	...	...	1	...	1	...	...	1	...	...	...	1
Linn.....	6	...	...	...	6	3	3	...	...	1	4	1	6	...
Livingston.....	3	1	...	...	4	...	4	...	...	1	3	...	1	3
Macon.....	10	3	4	...	17	8	7	2	...	2	2	8	1	16
Monroe.....	...	...	2	...	2	...	...	...	...	2	...	...	1	1
Morgan.....	...	...	...	1	1	...	...	1	...	...	...	...	...	...
Montgomery.....	2	...	...	...	2	...	2	...	...	...	2	...	2	...
Nodaway.....	4	...	...	...	4	...	4	...	...	2	...	...	4	...
Putnam.....	3	2	3	...	2	3	2	3	...	...	5	3	1	7
Ralls.....	2	...	1	...	3	...	1	...	...	1	...	...	3	...
Randolph.....	9	2	6	...	17	7	9	1	...	2	10	5	3	14
Ray.....	23	3	7	...	33	12	11	10	...	5	20	8	33	...
St. Clair.....	3	3	1	2	9	...	4	3	...	6	1	...	...	6
Saline.....	...	1	...	...	1	...	...	1	...	...	1	...	1	...
Schuyler.....	2	...	...	...	2	...	2	...	...	1	1	...	...	2
Vernon.....	4	4	1	4	13	5	2	2	...	4	1	4	...	9
Totals.....	149	59	81	60	350	78	125	96	3	107	123	60	128	154

nage and value of the output of the Missouri Coal Mines for the fiscal June 30, 1900.

Powder.		No. mules worked.		Employees.						Tons of coal mined in each county.....	Average price per ton received at mines..	Total amt. received for the output.....	Casualties.	
No. of kegs used.....	Cost to miners.....	Winter.....	Summer.....	Miners.		Day & outside men.		Totals.					Fatal.....	Non-fatal.....
				Winter.....	Summer.....	Winter.....	Summer.....	Winter.....	Summer.....					
5,311	\$10,620 00	30	25	399	286	65	46	464	332	181,577	\$1 09	\$190,118	2	...
40	80 00	6	5	129	90	31	25	160	115	43,530	1 36	59,492	...	...
6,588	13,175 50	17	18	191	171	83	47	274	218	141,520	1 08	152,835	...	...
16,720	33,247 50	76	70	463	416	194	167	657	583	363,577	1 00	363,291	3	...
347	706 50	4	2	54	21	16	15	70	36	19,179	1 25	24,007	...	...
...	...	...	...	138	56	18	13	156	69	26,000	1 53	39,834	...	...
...	...	4	4	48	31	8	6	56	37	15,120	1 50	22,746	...	...
5	10 00	...	...	6	2	8	2	14	4	1,575	1 99	3,135	...	...
192	384 00	1	...	10	...	4	...	14	...	2,745	1 21½	3,338	...	...
...	...	...	...	10	...	4	...	16	...	1,095	1 30	1,432	...	...
24	48 00	...	...	17	9	5	1	22	10	2,940	1 68	4,953	...	...
...	...	3	2	30	20	8	6	38	26	12,800	2 25	28,800	...	...
...	...	...	...	5	...	...	...	5	...	1,000	2 50	2,500	...	...
...	...	5	5	11	4	...	...	11	4	2,350	1 50	3,525	...	...
4,403	8,605 50	11	10	124	104	22	20	146	124	42,371	1 79	75,821	...	...
...	...	...	...	373	288	115	89	488	374	129,902	1 43	188,708	...	...
...	...	4	3	14	2	1	1	15	3	2,944	1 83	5,412	...	...
...	...	...	...	77	50	30	18	107	68	20,900	2 15	45,000	...	...
115	259 00	...	...	28	14	9	4	37	18	8,455	1 29	10,928	...	...
450	900 00	60	38	1,195	635	228	154	1,423	789	377,892	1 50	567,028	1	2
8	16 00	...	...	2	...	...	...	2	...	270	1 62½	438	...	...
...	...	11	9	193	152	45	38	238	190	81,130	1 55	126,189	...	...
...	...	...	...	26	10	6	4	26	14	3,813	2 04	7,798	...	...
18,721	37,432 00	77	64	1,142	1,116	321	310	1,463	1,426	595,297	1 08	646,649	1	12
...	...	...	...	4	3	...	...	4	3	822	1 31	1,076	...	...
...	...	...	...	10	7	1	...	10	7	300	90	270	...	...
9	21 10	...	...	15	6	2	...	17	6	1,675	1 34	2,245	...	...
...	...	21	20	351	294	61	55	412	349	2,371	2 36	5,589	...	...
...	...	3	3	49	38	10	8	59	46	106,203	1 22	130,532	...	2
5,047	10,094 00	46	40	684	527	115	85	799	612	20,956	1 13	23,778	...	...
...	...	39	27	893	618	135	101	1,028	719	303,133	93	284,543	...	...
25	47 50	1	1	22	6	7	2	29	8	243,592	1 47	358,247	...	1
...	...	...	...	2	2	...	...	2	2	3,892	1 52	5,918	...	...
...	...	1	...	23	...	4	...	27	...	5,500	2 50	1,250	...	...
11,455	22,887 20	36	36	321	323	85	81	406	404	4,253	1 25	5,316	...	...
...	...	...	...	...	...	...	...	...	...	229,343	1 05	241,653	2	2
68,460	138,533 80	456	382	7,055	5,300	1,643	1,298	8,698	6,601	2,995,022	1 21	3,643,975	10	23

TABLE IX—Showing by counties, kind and number of coal mines of employes, prices paid and received, total output of coal from the ceived for the product.

ADAIR

Office number.....	Name of company or mine owner.	Name of operator.	No. of days worked.	Kind of opening			Depth of shaft.....	Thickness of coal.....	Kind of power.			How ventilated.
				Strip-pit.	Drift.	Slope.			Steam.	Hand.	Electricity.	
1	American Fuel Co.....	American Fuel Co.....	245	1	1	1	3	6	1	1	1	1
2	Besanko, Robt.....	Robt. Besanko.....	150	1	1	1	45	4	1	1	1	1
3	Culler, Wm. & G.....	Thos. Scott.....	60	1	1	1	3	10	1	1	1	1
4	Watson Coal Co.....	Watson Coal Co.....	100	1	1	1	69	6	1	1	1	1
5	Havens & Co., C. B.....	C. B. Havens & Co.....	108	1	1	1	69	6	1	1	1	10
6	Paris, John.....	John Paris.....	60	1	1	1	3	6	1	1	1	1
7	McCabe, P.....	P. McCabe.....	150	1	1	1	25	3	1	1	1	1
8	Mainwald, Karl.....	Karl Mainwald.....	60	1	1	1	1	1	1	1	1	1
9	Motter, Noah.....	F. J. Miller.....	70	1	1	1	1	1	1	1	1	1
10	Rombauer Coal Co.....	Rombauer Coal Co.....	249	1	1	1	50	8	1	1	1	10
11	Scott, D. C.....	D. C. Scott.....	165	1	1	1	52	1	1	1	1	1
12	Stroup & Son, J. F.....	J. F. Stroup & Son.....	130	1	1	1	3	6	1	1	1	1
			1,884	5	2	4			6	3	4	5

AUDRAIN

1	Carr, Paris.....	Paris Carr.....	140	1	1	1	17	4	6	1	1	1
2	Farber Coal Mine.....	Lauder & Peterson.....	200	1	1	1	104	6	1	1	1	8
3	Hafner, O. F.....	Joseph Holtkamp.....	200	1	1	1	200	6	1	1	1	1
4	R. E. Johnson.....	G. W. McGuire.....	160	1	1	1	43	6	1	1	1	1
5	Krieger Coal Co.....	Oscar Krieger.....	279	1	1	1	110	6	1	1	1	1
6	Standard Coal Co.....	Standard Coal Co.....	165	1	1	1	80	6	1	1	1	1
7	Vandalia Coal Co.....	Vandalia Coal Co.....	245	1	1	1	75	4	1	1	1	8
			1,449	6	1	1			3	3	1	2

BARTON

1	Bell, J. W.....	J. W. Bell.....	60	1	1	1	1	2	1	1	1	1
2	Betz, John.....	John Betz.....	150	1	1	1	2	4	1	1	1	1
3	Boulware, Geo.....	Geo. Boulware.....	47	1	1	1	2	6	1	1	1	1
4	Brenogel, W. F.....	W. F. Brenogel.....	97	1	1	1	2	4	1	1	1	1
5	Chancellor, H. C.....	H. C. Chancellor.....	45	1	1	1	2	10	1	1	1	1
6	Divine, W. B.....	W. B. Divine.....	60	1	1	1	1	4	1	1	1	1
7	Foglesong, J. W.....	J. W. Foglesong.....	40	1	1	1	1	2	1	1	1	1
8	Hall & Fletcher.....	Hall & Fletcher.....	120	1	1	1	2	10	1	1	1	1
9	Joyce, A. H.....	Benj. Walters.....	40	1	1	1	1	2	1	1	1	1
10	Kiser & Aleshire.....	D. F. Aleshire.....	60	1	1	1	30	2	4	1	1	1
11	Lasley, M.....	Geo. Clannch.....	120	1	1	1	3	3	1	1	1	1
12	Lasley, F. D.....	F. D. Lasley.....	130	1	1	1	3	3	1	1	1	1
13	Lasley, W. B.....	W. B. Lasley.....	160	1	1	1	3	3	1	1	1	1
14	Prosser, Jno. J.....	A. T. Bailey.....	140	1	1	1	2	3	1	1	1	1
15	Sanford Bros. Mer. Co.....	Sanford Bros. Mer. Co.....	120	1	1	1	3	3	1	1	1	1
16	Spear, M. M.....	M. M. Spear.....	45	1	1	1	1	1	1	1	1	1
17	Still, W. H.....	W. H. Still.....	60	1	1	1	1	2	1	1	1	1
18	Short, Josiah.....	Josiah Short.....	244	1	1	1	3	3	1	1	1	1
19	Swigart & Sons.....	Swigart & Sons.....	150	1	1	1	30	6	1	1	1	1
20	Travis, Joseph.....	Joseph Travis.....	150	1	1	1	2	2	1	1	1	1
21	Waltman, J. H.....	J. H. Waltman.....	40	1	1	1	1	2	1	1	1	1
22	Western C. & M. Co., No. 8	Western Coal & M. Co.....	286	1	1	1	56	3	1	1	1	16
23	Walser, G. H.....	Nicholson Rogers & Co.....	120	1	1	1	2	1	1	1	1	1
24	Wear Coal Co., No. 3.....	Wear Coal Co.....	240	1	1	1	44	3	1	1	1	10
			2,724	4	6	6	8		3	6	10	1

*l, method or plan of working the same, kind of plant, number
ve mines for the year ending June 30, 1900, and amount re-*

Amount and of powder.	Mules worked	Employees.						Price paid for mining.		Tons of coal mined.	Price paid per ton at mines.....	Am't received for total output year ending June 30, 1900.	Office number.....
		Miners.	Others.	Total.				Winter.....	Summer...				
Cost.....	Winter.....	Summer.....	Winter.....	Summer..	Winter.....	Summer..	Winter.....	Summer..	Winter.....	Summer..	Winter.....	Summer..	Winter.....
.....	14	14	110	90	18	14	128	104	75	75	53,965	\$1 15	\$62,060
.....	5	.....	1	.....	6	.....	75	.....	1,500	1 25	1,875
.....	12	.....	.....	.....	12	.....	81 1/4	.....	240	1 12 1/2	270
.....	17,751	1 00	17,750
.....	22,880	1 00	22,880
.....	605	1 25	756
.....	3,000	1 25	3,750
.....	400	1 50	600
.....	640	1 25	800
.....	70,096	1 07 1/2	75,252
.....	2,500	1 25	3,125
.....	8,000	1 25	10,000
.....	181,577	1 09	199,118

.....	.....	.....	4	1	1	.....	5	1	75	.....	1,039	\$1 25	1,299	1
.....	.....	.....	25	10	3	3	28	13	86	86	7,250	1 52	11,020	2
.....	.....	.....	5	1	1	.....	3	1	100	100	600	1 50	900	3
.....	.....	.....	.....	.....	.....	.....	.....	.....	75	75	1,336	1 00	1,336	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	80	80	7,372	1 30	9,517	5
.....	.....	.....	.....	.....	.....	.....	.....	.....	80	80	1,644	1 60	2,630	6
.....	.....	.....	.....	.....	.....	.....	.....	.....	80	80	24,289	1 35	32,790	7
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43,530	1 36	59,492	.....

.....	.....	.....	2	.....	.....	.....	12	.....	1 50	.....	120	2 00	240	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	60	50	600	1 10	660	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	75	.....	425	1 50	637	3
.....	.....	.....	.....	.....	.....	.....	.....	.....	75	.....	600	1 20	720	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	500	1 10	550	5
.....	.....	.....	.....	.....	.....	.....	.....	.....	1 00	.....	220	1 50	330	6
.....	.....	.....	.....	.....	.....	.....	.....	.....	1 00	.....	100	2 00	200	7
.....	.....	.....	.....	.....	.....	.....	.....	.....	60	60	2,161	1 00	2,161	8
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	120	2 00	240	9
.....	.....	.....	.....	.....	.....	.....	.....	.....	50	.....	399	95	380	10
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	750	90	675	11
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,800	1 40	2,520	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,700	1 10	1,856	13
.....	.....	.....	.....	.....	.....	.....	.....	.....	70	70	480	1 25	600	14
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,800	1 25	8,500	15
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	320	1 75	560	16
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	200	2 00	400	17
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,708	1 00	1,708	18
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,132	1 10	3,445	19
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	750	1 25	937	20
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	120	2 00	240	21
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	30,971	90	28,988	22
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,200	1 10	1,320	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	86,344	1 10	94,968	24
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	141,520	1 08	152,835	.....

STATISTICS OF

BATES

Office number.....	Name of company or mine owner.	Name of operator.	No. of days worked.	Kind of opening		Depth of shaft.....	Thickness of coal..... Feet.	Inches.	Kind of power.		How ventilated.	
				Shaft.....	Stair-pit.....				Electricity.	Steam.		
1	Ackerman, Jas.....	Jas. Ackerman.....	90	..	1	..	4	..	1	..	..
2	Cooper, Benj.....	Benj. Cooper.....	46	1	..	..	6	..	1	1	..
3	Craig, T. A.....	T. Craig.....	105	..	1	..	6	..	..	..	..
4	Creviston & Fitzpatrick...	J. L. Creviston.....	110	1	..	..	..	..	1	1	..
5	Elliott, Jos.....	Jos. Elliott.....	40	..	1	..	10	..	1	1	..	
6	Engels & Brooks.....	Engels & Brooks.....	100	..	1	..	11	..	..	..	..
7	Horton, C. E.....	C. E. Horton.....	140	..	1	..	6	..	..	..	..
8	Hough Bros. (Switch Mine)	Fred Hough.....	78	1	..	..	10	1	..	1	..
9	Hough & Stringer.....	".....	48	1	..	..	10	1	..	1	..
10	Lewis, O. H.....	John Gerodo.....	90	..	1	..	9	..	..	..	..
11	Martin, F. M.....	F. M. Martin.....	120	..	1	..	6	..	..	..	..
12	Pearson, Peter.....	Peter Pearson.....	240	..	1	..	6	..	..	..	..
13	Price, Carswell & Co.....	Price, Carswell & Co.....	35	..	1	..	6	..	1	1	..	
14	Rankin, J. C.....	J. C. Rankin.....	135	1	..	..	210	1	..	1	..
15	Rich Hill Coal & Mining Co.	R. H. C. & M. Co., mine 15	188	1	..	..	106	4	1	1	15
16	" " " "	" " " "	76	..	1	..	4	..	..	..	..
17	" " " "	" " " "	230	1	..	..	85	3	1	..	12
18	" " " "	Contract mine:										
19	" " " "	J. M. Wise.....										
20	" " " "	R. Pearson.....										
21	" " " "	Perry & Wilson.....										
22	" " " "	W. H. Lowder.....										
23	" " " "	Hines Bros.....										
24	" " " "	Dave Rees.....										
25	" " " "	Bruce & Rees.....	1,450	4	6	4	405	2	10	2	8 1/2	
26	" " " "	W. Bruce.....										
27	" " " "	Stover & McMullen.										
28	" " " "	Denayer Bros.....										
29	" " " "	N. Bellier.....										
30	" " " "	Thos. Manchester...										
31	" " " "	J. C. Griggs.....										
32	" " " "	E. A. Gee.....										
33	Stephens Bros.....	Stephens Bros.....	60	1	..	..	3	..	1	..	1
34	Thurman & Pitman.....	Fortuer & Thompson...	150	..	1	..	4	..	..	..	..
35	Thurman & Son, W. C.....	W. C. Thurman & Son	30	..	1	..	6	..	..	..	..
36	Trout, W.....	W. Trout.....	160	..	1	..	6	..	..	..	..
37	Walnut Creek or Darby Hill	W. H. Mace.....	120	1	..	..	3	..	1	..	1
38	Washburn, Henry.....	Henry Washburn.....	225	1	..	..	3	2	1	..	1
	Western Mining Co.....	J. N. Tatley.....	168	1	..	..	3	..	1	..	1
	Totals.....		4,218	2	13	8	15	..	4	19	5	113 1/2

BOONE

1	Beasley, W. H.	Oliver, Fainter	150	1	3	8	1	1
2	Buckler, H. T.	H. T. Buckler	72	1	3	6	1	1
3	Carter Bros. Coal Co.	Carter Bros.	215	75	29	1		
4	Columbia Coal Co.	R. E. Henry	200	112	29	1		
5	Gordon, S. D.	S. D. Gordon	210	55	30	1		
6	Hood, T. B.	T. B. Hood	27	1	3	6		
7	Keene, Jas. H.	Jas. H. Keene	240	127	3	4	1	
8	McKenzie, J. F.	J. F. McKenzie	15	1	3			
9	Sims, W. W.	J. E. Taylor	45	1	3	8		
10	Stidham, W. A.	W. A. Stidham	25	1	3	10		
11	White, J. H. & W. M.	J. H. White	40	1	3	10	1	1
12	Whitmarsh, Chancey	Chancey Whitmarsh	90	1	3	10	1	1
			1,329	4	1	3	4	4

COAL MINES—Continued.

COUNTY.

Office number.....	Amt. received for total output year ending June 30, 1900.	Price paid per ton at mines	Tons of coal mined..	Price paid for mining.		Employees.			Mules worked	Amount and cost of powder.		Pillar and room.....
						Miners.		Others.					Total.
				Summer...	Winter....	Summer...	Winter....	Summer...	No. of kegs	Cost.....		
1			1,000	\$1 25		4		4		3	\$6 00	
2			120	1 50		1		1		35	61 25	
3			3,000	1 25		10		10		70	122 50	
4			1,200	1 25		6		6		15	26 25	
5			320	1 25		1		1				
6			900	1 35		3	1	4				
7			1,849	1 20		3	3	3		18	31 50	
8			380	1 15		1		1		37	64 75	
9			580	1 15		1		1				
10			500	1 20		3		3				
11			2,000	1 25		1	1	2	6	43	86 00	
12			2,320	1 00		4		4	1	11	22 00	
13			300	1 30		1	1	2	1	90	157 50	
14			1,703	1 30		7	1	8	1			
15			187,878	95 3/4		87	88	287	30	9,066	18,132 00	
16			3,116	1 00		5	9	14	10			
17			82,065	1 06		80	80	32	10	3,778	7,556 00	
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
32			900	1 40		6		8	1	45	78 75	
33			1,800	1 25		2		4				
34			150	1 50		2		2	1			
35			1,000	1 00		6		6				
36			1,920	1 05		6	1	7	1	80	140 00	
37			4,500	1 15		8	3	11	1	200	350 00	
38			3,240	1 15		5	2	7	1	180	315 00	
39			363,577	1 00		403	416	657	76	16,720	33,247 50	

COUNTY.

1						2	1	\$ 60	\$ 60	400	\$ 80	\$320	1			
2						6		75		900	1 00	900	2			
3						12	3	14	4	75	75	4,800	1 25	6,000	3	
4						10	8	15	12	70	70	3,200	1 25	4,000	4	
5						8	4	10	6	75	75	2,400	1 50	3,600	5	
6						2		2				135	1 00	135	6	
7						9	5	3	12	7	75	70	6,072	1 25	7,600	7
8								2	3			92	1 00	92	8	
9								3				200	1 00	200	9	
10									3			140	1 00	140	10	
11						5		5		87½		480	1 00	480	11	
12						2		2				360	1 50	540	12	
13																
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STATISTICS OF

CALDWELL

Office number.....	Name of company or mine owner.	Name of operator.	No. of days worked.	Kind of opening		Depth of shaft..... Feet.	Thickness of coal..... Inches.	Kind of power.				How ventilated.
				Strip-pit.	Drift.			Steam.	Horse.	Hand.	Electricity.	
1	Caldwell Coal Co.....	Caldwell Coal Co.....	237	1	...	527	1	8	1	...	...	10
2	Dripping Springs Coal Co..	A. Bishop.....	285	1	...	245	1	6	1	...	...	1
			522	2	...	...	...	2	...	...	...	1

CALLAWAY

1	Castle, Wm.....	Wm. Castle.....	260	...	1	...	12	4	...	1	...	1
2	Fulton Fire, Brick & M. Co	F. F., B. & M. Co.....	235	1	...	125	12	...	...	...	...	3
3	Harris, John.....	John Harris.....	210	1	...	40	6	1	...	...	...	1
4	Marsenkop, J., Curd M...	John Marsenkop.....	130	1	...	25	...	1	...	...	...	1
5	Smith Mine.....	Jas. Smith.....	240	...	1	...	12	8	...	1	...	1
6	Smith, James.....	J. W. Simmons.....	205	1	...	50	12	8	...	1	...	1
			1,280	4	2	...	...	1	3	2	...	5

CARROLL

1	Anwarter, H. D.....	H. D. Anwarter.....	125	...	1	...	1	6	...	1	...	1
2	Farr, R.....	D. H. Middleton.....	60	...	1	...	12	...	...	...	...	...
3	Gallaher, Wm. P.....	D. Epperson.....	60	...	1	...	1	8	...	...	...	...
4	Hughes, Wm.....	Wm. Hughes.....	65	...	1	...	1	10	...	...	...	...
5	Ogle, W. F.....	W. F. Ogle.....	105	...	1	...	1	6	...	...	...	...
6	Standard Mine.....	A. C. & J. R. Hooke.....	100	1	...	...	12	...	...	1	...	1
7	Whitehead, Jas.....	Jas. Whitehead.....	20	1	1	8	...	1	...	1
			535	2	1	4	3	...	3	...

CASS

1	Caighton Coal Co.....	Geo. Meidinger.....	128	1	160	2	10	1	...	1
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CLAY

1	Missouri City Coal Co.....	Missouri City Coal Co...	160	1	152	1	11	1	...	1
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COOPER

1	Hazell Springs Mining Co..	Chas. W. Hazell.....	145	...	1	...	1	6	...	1	...	1
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STATISTICS OF

CEDAR

Office number.....	Name of company or mine owner.	Name of operator.	No. of days worked.	Kind of opening		Depth of shaft.....	Thickness of coal..... Feet..	Kind of power.		How ventilated.
				Strip-pit...	Slope...			Steam...	Electricity...	
1	Beebe, Ed. M.....	Ed. M. Beebe.....	10	1	1	1	8	1	1	1
2	Duncan, J. C.....	J. C. Duncan.....	60	1	1	1	8	1	1	1
3	Lloyd, R. A.....	N. D. W. Lloyd.....	30	1	1	1	8	1	1	1
4	McLeod, J.....	J. M. Bridgewater.....	42	1	1	1	8	1	1	1
5	Poague, G. M.....	G. M. Poague.....	78	1	1	1	8	1	1	1
6	Schroder, C. M.....	C. M. Schroder.....	65	1	1	1	10	1	1	1
7	Young, J. H.....	J. H. Young.....	50	1	1	1	8	1	1	1
			335	4	3			4	4	

CHARITON

1	Applegate, L. M.....	M. L. Finnell.....	100	1	1	22	1	8	1	1
2	Bennett Bros.....	Bennett Bros.....	20	1	1	1	8	1	1	1
3	Buffington, F. P.....	F. P. Buffington.....	225	1	1	1	6	1	1	1
4	Farrar, Milton.....	Milton Farrar.....	100	1	1	2	1	1	1	1
5	Huenten, John.....	R. Brewer.....	90	1	1	1	6	1	1	1
6	Isle, R. W.....	R. W. Isle.....	15	1	1	1	5	1	1	1
7	Kahler, W. J.....	W. J. Kahler.....	19	1	1	1	6	1	1	1
8	Wachter, H.....	H. Wachter.....	145	1	1	57	3	6	1	1
			714	2	2	2		6	5	1

DADE

1	Finney, W. T.....	W. T. Finney.....	200	1	1	2	4	1	1	1
2	McCluey, Robt.....	Robt. McCluey.....	90	1	1	2	5	1	1	1
			290	1	1			2	2	1

GRUNDY

1	Grundy County Coal Co...	F. F. Fulkerson.....	200	1	1	174	1	6	1	1
2	Medicine Valley Coal Co...	C. Tom Bailey.....	102	1	1	215	1	10	1	1
			302	2	1		2		1	1

STATISTICS OF

HENRY

Office number.....	Name of company or mine owner.	Name of operator.	No. of days worked.	Kind of opening		Depth of shaft.....	Thickness of coal.....	Kind of power.	How ventilated.
				Drift.....	Shaft.....				
1	Bowen Bros.....	Bowen Bros.....	260	1	1	20	6	1	1
2	Burgess, L. L.....	L. L. Burgess.....	60	1	1	20	6	1	1
3	Chappell, J. R.....	C. W. Field.....	148	1	1	20	6	1	1
4	Clapp, W.....	W. Clapp.....	15	1	1	20	6	1	1
5	Clark, David.....	David Clark.....	30	1	1	20	6	1	1
6	Co-operative C. & M. Co.	Co-operative C. & M. Co.	257	1	1	76	6	1	10
6 1/2	Cooper Creek Coal Co....	Blanchard, Thompson & McAfoose.....	220	1	1	20	3	1	1
7	Daley & Sons.....	R. B. Daley.....	185	1	1	25	3	1	1
8	Dickey Mine.....	W. L. Dickey.....	244	1	1	20	10	1	1
9	Engeman, Chas.....	Chas. Engeman.....	65	1	1	20	10	1	1
10	England, Wm.....	Wm. England.....	60	1	1	20	3	1	1
11	Gahart, Theo.....	Theo. Gahart.....	180	1	1	4	3	1	1
12	Graham, James.....	J. D. Graham.....	120	1	1	50	2	1	1
13	Hughes, W. E., Beedry M.	W. E. Hughes.....	125	1	1	19	4	1	1
14	Hurst, Iva.....	Ira Hurst.....	150	1	1	60	3	1	1
15	Hurst, J.....	J. Hurst.....	256	1	1	60	3	1	1
16	Hurst, W. R.....	M. Hurbert.....	35	1	1	1	8	1	1
17	Jordan Coal & Coke Co..	Jordan Coal & Coke Co..	226	1	1	55	2	1	1
18	McLeod Mine.....	Jas. Dawson.....	100	1	1	35	3	1	1
19	Meranda, W. T.....	John Hurst.....	110	1	1	35	3	1	1
20	Miller, W. J.....	L. M. Beaman.....	210	1	1	35	5	1	1
21	Owen, John.....	John Owen.....	50	1	1	2	4	1	1
22	Parks, Eunice R.....	E. R. Parks.....	90	1	1	20	3	1	1
23	Pharis Coal Co.....	T. A. Pharis.....	140	1	1	2	6	1	1
24	Pigg, D. B.....	D. B. Pigg.....	130	1	1	2	6	1	1
25	Rayburn, D. C.....	D. C. Rayburn.....	28	1	1	10	1	1	1
26	Reese, Sr., Wm.....	Wm. Reese, Sr.....	105	1	1	3	1	1	1
27	Reese, Jr., Wm.....	Wm. Reese, Jr.....	120	1	1	42	3	1	1
28	Rusk, Wm.....	Wm. Rusk.....	120	1	1	30	2	1	1
29	Smith, James W.....	Jas. W. Smith.....	105	1	1	22	2	1	1
30	Teemann, John.....	John Teemann.....	27	1	1	2	1	1	1
31	Thompson, John.....	John Thompson & Co..	275	3	1	230	3	1	2
32	Tyree, Joseph.....	Joseph Tyree.....	30	1	1	1	1	1	1
33	Victor, S. M.....	Wm. Lindimore.....	15	1	1	2	1	1	1
34	Watkins Mine.....	J. P. Watkins.....	160	1	1	35	2	1	1
35	Wilson, Thomas P.....	John Kolvie.....	22	1	1	1	8	1	1
			4,453	20	4	115	...	4	20

HOWARD

1	Elkin Mine.....	W. R. Graham.....	208	1	1	1	8	1	1
2	Fayette Coal Mines.....	R. L. Jackson.....	204	1	1	1	6	1	1
3	Lockridge Mine.....	Jas. Gray.....	100	1	1	1	6	1	1
	Totals.....		512	3	3	3	3

JACKSON

1	Brush Creek Mine.....	Brush Creek C. & M. Co.	255	1	1	300	1	9	1
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STATISTICS OF

NTY.

Amount and cost of powder.		Mules worked	Employees.						Price paid for mining.		Tons of coal mined.	Price paid per ton at mines.	Amt. received for total output year ending June 30, 1900.	Office number.	
			Miners.		Others.		Total.	Winter.	Summer.	Winter.					Summer.
No. of kegs	Cost.	Winter.	Summer.	Winter.	Summer.	Winter.	Summer.				Winter.	Summer.			
		3	3	35	35	10	10	45	45	\$ 80	\$ 70	12,976	\$1 30	\$16,809	1
						4	4	4	4			180	1 50	270	2
												1,253	1 50	1,880	3
												55	1 75	96	4
												95	2 00	190	5
		3	3	35	26	10	9	45	35	80	70	10,614	1 50	16,000	6
750	\$1,500 00			25	18	5	3	30	21	90	80	14,702	1 60	23,523	6 1/4
728	1,450 00	2	2	24	24	6	6	30	30	85	75	11,728	1 33 1/2	16,548	8
14	24 50			3	1	.....	.....	3	1	90	80	300	1 75	525	9
				12	12	2	2	4	4	.....	.....	1,600	1 12 1/2	1,800	10
10	20 00			3	3	1	1	3	3	87 1/2		360	1 75	630	11
30	60 00			9	4	3	1	12	5	1 00	85	2,237	1 45	3,244	14
95	190 00			10	8	1	1	11	9	1 00	80	4,608	1 65	7,603	15
274	358 00			3	.....	.....	.....	3	.....	.....	.....	200	1 37 1/2	275	16
608	1,216 00	2	2	36	19	5	4	41	23	90	90	8,823	1 50	13,233	17
35	63 00			7	2	1	1	8	3	1 00	1 00	900	1 50	1,350	18
75	150			7	5	1	1	8	6	1 00	90	978	1 50	1,467	19
48	96			4	4	2	2	6	6	75	50	2,246	1 50	3,369	20
				2	.....	.....	.....	2	.....	.....	.....	200	1 50	300	21
				12	.....	.....	.....	12	.....	87 1/2		369	2 00	738	22
75	150			10	8	2	2	12	10	1 00	1 00	1,300	1 50	1,950	23
		1	1	12	13	5	5	27	18	80	70	5,000	1 40	7,000	24
					5	.....	.....	5	.....	.....	.....	300	1 50	450	25
78	156			11	11	3	3	14	14	90	80	1,851	1 65	3,054	26
250	500			22	15	1	1	23	16	90	80	5,050	1 47	7,424	27
				2	.....	1	.....	3	.....	85	.....	450	1 62 1/2	731	28
38	76			5	2	2	2	7	4	1 00	1 00	911	1 55	1,412	29
					2	.....	.....	2	.....	.....	.....	110	2 00	220	30
1,200	2,400			80	80	25	30	105	110	90	80	36,000	1 35	48,600	31
					2	.....	.....	2	.....	.....	.....	90	2 00	180	32
					2	.....	.....	2	.....	.....	.....	45	2 00	90	33
95	190			7	5	1	1	8	6	1 00	90	1,900	2 00	3,800	34
					2	.....	.....	2	.....	.....	.....	55	2 00	110	35
4,403	8,605 50	11	10	373	288	115	89	488	374	.....	.....	129,902	1 43	188,708	.....

NTY.

.....	.....	.....	6	.....	.....	6	.....	\$1 25	.....	1,560	\$1 75	\$2,730	1
.....	2	2	1	1	3	3	1 25	\$1 25	574	1 85	1,002	2
.....	6	6	1 25	810	2 00	1,620	3	
.....	14	2	1	1	15	3	2,944	1 83	5,412	

NTY.

.....	4	3	77	50	30	18	107	68	\$1 00	\$ 90	20,900	\$2 15	\$45,000	1
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STATISTICS OF

JOHNSON

Office number.....	Name of company or mine owner.	Name of operator.	No. of days worked.	Kind of opening			Depth of shaft..... Feet.	Thickness of coal.... Inches.	Kind of power.			How ventilated.
				Shaft.....	Slope.....	Drift.....			Steam.....	Horse.....	Electricity.....	
1	Boyd & Son, Thos.....	Thos. Boyd & Son.....	116	1	..	..	40	3	1	..	..	12
2	Christopher, J. H.....	Edwin Hardin.....	175	1	..	..	..	3	6	1	1	..
3	Hanna & Co, L. E.....	..	102	1	..	..	40	3	6	1	1	..
4	Melley, M. B.....	M. B. Melley.....	105	1	..	..	27	1	8	..	1	..
5	Murley Mine.....	Jos. Murley.....	60	..	1	..	..	6	..	1	1	..
6	Park, Richard.....	Park & Hedgerock.....	30	..	1	..	..	4	..	..	..	..
	Totals .....	..	588	3	1	1	..	..	2	3	3	1

LINN

1	Brookfield Coal Co.....	Brookfield Coal Co.....	235	1	..	..	150	2	4	1	..	1
2	Burdall Mine.....	J. Burdall.....	130	1	..	..	150	2	4	1	..	1
3	Landreth Mine.....	R. F. Landreth & Sons..	144	1	..	..	130	2	4	1	..	1
4	Marcelline Coal Co.....	Marcelline Coal Co.....	239	1	..	..	185	2	4	1	..	12
5	Schaefer, Bernard.....	Bernard Schaefer.....	225	1	..	..	150	2	4	1	..	1
6	Williamson, L. R.....	L. R. Williamson.....	250	1	..	..	155	2	6	1	..	1
			1,223	6	..	..	..	..	3	3	..	14

LIVINGSTON

1	Adams, John.....	John Adams.....	156	1	..	..	70	1	6	1	..	1
2	Cox's Star Mine.....	W. L. Cox.....	93	1	..	..	55	1	6	1	..	1
3	Eagle Coal Mine.....	Cox Bros.....	125	1	..	..	60	1	10	1	..	1
4	Tindell, J. W.....	Tindell & Co.....	132	..	1	1	7	1	..	1
			506	3	1	4	..	1	3

LINCOLN

1	Overton & Wilson.....	Overton & Wilson.....	90	1	25	4	..	1	1	..
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INES—Continued.

Amount and of powder.	Mules worked	Employees.						Price paid for mining.		Tons of coal mined..	Price paid per ton for mines.....	Amt't received for total output, year ending June 30, 1900.	Office number.....
		Miners.	Others.	Total.				Winter.....	Summer..				
Cost,.....	Winter....	Summer..	Winter....	Summer..	Winter....	Summer..	Winter....	Summer..	Winter....	Summer..	Winter....	Summer..	Winter....
15	\$259	..	12	3	15	3	\$ 62½	75	\$ 75	\$4,345	\$1 25	\$5,431	1
..	..	..	3	3	3	3	75	50	75	850	1 25	1,062	2
..	..	..	3	3	3	3	11	11	11	2,400	1 25	3,000	3
..	..	..	3	1	4	4	1 25	1 25	1 25	500	1 90	950	4
..	..	..	..	..	..	..	80	..	..	220	1 10	240	5
..	..	..	..	..	..	..	..	..	..	140	1 75	245	6
15	259	..	28	14	9	4	37	18	..	8,455	1 29	10,028	

..	..	15	7	5	2	20	9	\$1 00	90	2,723	\$1 98	\$5,392	1
..	..	12	4	1	1	13	5	1 12½	1 00	2,300	1 87½	4,313	2
..	..	11	2	2	1	13	3	1 00	1 00	2,808	1 65	4,621	3
..	..	11	9	130	32	32	162	1 00	1 00	65,605	1 50	98,407	4
..	..	15	6	3	1	18	7	1 12½	1 12½	4,604	1 87½	7,676	5
..	..	10	3	2	1	12	4	90	90	3,600	1 60	5,760	6
..	..	11	9	193	152	45	38	238	190	81,130	1 55	126,169	

..	..	4	2	3	2	7	4	\$1 00	\$1 00	1,040	\$2 25	\$2,340	1
..	..	5	..	1	..	6	..	1 00	..	651	2 25	1,464	2
..	..	5	3	1	1	6	4	1 00	1 00	1,000	1 75	1,750	3
..	..	6	5	1	1	7	6	1 25	1 00	1,122	2 00	2,244	4
..	..	20	10	6	4	26	14	3,813	2 04	7,798	

8	\$16 00	..	2	2	..	1 00	..	270	\$1 62½	\$438	1
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STATISTICS OF

LAFAYETTE

Office number.....	Name of company or mine owner.	Name of operator.	No. of days worked.	Kind of opening		Depth of shaft..... Feet.	Thickness of coal..... Inches.	Kind of power.			How ventilated.
				Strip-pit.....	Drift.....			Steam.....	Horse.....	Electricity.....	
1	Bell, W. H.....	W. H. Bell.....	230	1	.....	110	.....	1	.....	1	.....
2	Bell & Greer.....	Bell & Greer.....	156	1	.....	16	.....	1	.....	1	.....
3	Black Diamond.....	C. & R. Hohenwald.....	188	1	.....	30	.....	1	.....	1	.....
4	Bonanza Coal Co.....	Sebastian W. Brandan.....	124	1	.....	70	.....	1	.....	1	.....
5	Carter Coal Co.....	W. R. Carter.....	225	1	.....	19	.....	1	.....	1	.....
6	Chanslor, C. A.....	C. A. Chanslor.....	250	1	.....	18	.....	1	.....	1	.....
7	Corder Coal Co.....	Corder Coal Co.....	180	1	.....	90	.....	1	.....	1	8
8	Consolidat'd F'rmer's C.Co.	Con. Farmers' Coal Co..	190	3	1	30 45 75	163	2	.....	2	210
9	DeBolt, J. H.....	J. H. DeBolt.....	70	1	.....	16	.....	1	.....	1	.....
10	Diamond Coal Co.....	Diamond Coal Co.....	210	1	.....	56	110	1	.....	1	.....
11	Dover Coal Co.....	Dover Coal Co.....	70	1	.....	2	.....	1	.....	1	.....
12	Frerking, H. F.....	H. F. Frerking.....	130	1	.....	16	.....	1	.....	1	.....
13	Gaffin, O. M.....	O. M. Gaffin.....	195	1	.....	18	.....	1	.....	1	.....
14	Geisendorfer, S. F.....	S. F. Geisendorfer.....	130	1	.....	18	.....	1	.....	1	.....
15	Hendrix, L. B. Miss.....	E. J. Rust.....	100	1	.....	110	.....	1	.....	1	.....
16	Hoffman's Mine.....	E. T. Hoffman.....	190	1	.....	16	.....	1	.....	1	.....
17	Kresse, A. F.....	A. F. Kresse.....	80	1	.....	110	.....	1	.....	1	.....
18	Labor Exch'ng. C.M'ng. Ass.	Labor Exchange C.M. Ass.	215	1	.....	106	161	.....	.....	1	.....
19	Lexington Coal Mining Co.	L.C.M.Co., McDowell shft	220	1	.....	43	181	.....	.....	1	10
20	" " " "	" Graddy "	241	1	.....	18	.....	1	.....	1	.....
21	" " " "	" Riverton, No. 1	182	1	.....	18	.....	1	.....	1	110
22	" " " "	" Seawall Mine	214	1	.....	18	.....	1	.....	1	10
23	" " " "	" Glen Oak M..	219	1	.....	43	110	1	.....	1	10
24	Longest, J. R.....	J. S. Stephenson.....	150	1	.....	16	.....	1	.....	1	.....
25	Looney, J. B.....	J. H. Looney.....	249	1	.....	72	151	.....	.....	1	8
26	McGrew, J. C.....	J. C. McGrew.....	144	1	.....	110	1	.....	.....	1	10
27	Macey, Ed. Henry.....	Henry Macey, Esq.....	153	1	.....	18	.....	1	.....	1	.....
28	Mayview Coal Co.....	Lewis & Fisher.....	170	1	.....	130	151	.....	.....	1	.....
29	Morgan, W. P.....	W. P. Morgan.....	190	1	.....	18	.....	1	.....	1	.....
30	Perry, Thos.....	Thos. Perry.....	60	1	.....	14	.....	1	.....	1	.....
31	Rosewell & Bros., Jas.....	Jas. Rosewell & Bros.....	190	1	.....	75	110	.....	.....	1	.....
32	Salt Fork Coal Co.....	Salt Fork Coal Co.....	220	1	.....	45	16	.....	.....	1	7
33	Sebastian Coal Co.....	Estate, Wm. Sebastian.....	180	1	.....	140	181	.....	.....	1	.....
34	Silver Creek Coal Co.....	Silver Creek Coal Co.....	200	1	.....	125	4	.....	.....	1	3
35	Stucker, Fred.....	Fred. Stucker.....	180	1	.....	33	18	.....	.....	1	.....
36	Summers, M. W.....	M. W. Summers.....	160	1	.....	22	.....	1	.....	1	.....
37	Walton Mine.....	Seth Spruce.....	100	1	.....	18	.....	1	.....	1	.....
38	Walton, Thos.....	Thos. Walton.....	240	1	.....	16	.....	1	.....	1	.....
39	Waverly Coal & Mining Co	Waverly Coal & M. Co.....	140	1	.....	100	361	.....	.....	1	8
40	Wellington Coal Mining Co	Wellington Coal M. Co.....	250	1	.....	40	16	.....	.....	1	.....
41	Woskoski Mine.....	M. Woskoski.....	90	1	.....	18	.....	1	.....	1	.....
42	Zeltz, L. B.....	L. B. Zeltz.....	301	1	.....	40	18	.....	.....	1	2
			7,516	20	7	19	.....	13	13	21	114

MINES—Continued.

Amount and of powder.	Mules worked	Employees.					Price paid for mining.		Tons of coal mined.	Price paid per ton at mines.....	Amt. received for total output year ending June 30, 1900.	Office number.....			
		Miners.	Others.	Total.											
					Winter....	Summer....									
Cost.....	Winter....	Summer....	Winter....	Summer....	Winter....	Summer....	Winter....	Summer....							
..	..	4	2	1	1	5	3	\$1 00	\$ 95	2,400	\$1 75	\$4,300	1		
..	..	8	..	..	..	8	..	1 12½	95	1,872	1 70	3,182	2
..	..	4	1	1	..	5	1	1 12½	1 12½	965	1 68½	1,668	3		
..	1	40	8	48	..	..	..	1 00	..	5,950	1 75	10,412	4
..	30	15	3	2	33	17	..	1 25	1 12½	10,100	1 35	11,615	5		
..	1	6	4	1	7	5	5	1 12½	1 00	3,600	1 75	6,300	6		
..	2	40	20	10	5	50	25	95	87½	10,900	1 37½	15,000	7		
..	8	150	..	18	2	168	2	95	..	34,200	1 75	59,850	8		
..	2	..	1	..	3	..	1 00	..	..	300	1 62½	530	9
..	1	24	16	3	3	27	19	95	95	11,400	1 67	19,178	10		
..	2	55	..	5	60	..	1 12½	..	..	6,000	1 50	9,000	11
..	2	2	2	1	3	3	1 00	1 00	..	400	1 62½	650	12		
..	2	1	20	10	3	23	12	1 00	87½	6,878	1 35	9,285	13		
..	4	4	..	..	4	4	1 07½	97½	..	685	1 50	1,028	14
..	3	32	..	..	3	32	1 12½	1 00	..	500	1 62½	812	15
..	8	..	1	1	9	3	1 00	1 00	..	1,600	1 62½	2,600	16		
..	2	2	..	..	2	2	1 25	1 25	..	240	1 75	420	17
..	30	30	3	2	33	32	1 50	1 12½	..	10,085	1 75	17,649	18		
..	5	84	68	18	18	102	86	1 00	81¼	32,059	1 34	42,960	19		
..	9	84	82	54	44	138	126	60	50	51,712	1 44	74,623	20		
..	5	4	66	56	13	12	79	68	1 00	87½	1 40	35,107	21		
..	3	2	40	30	7	6	47	36	1 00	81¼	87½	20,692	22		
..	6	6	100	91	22	22	122	113	1 00	81¼	81¼	75,501	23		
..	5	2	..	..	5	2	1 00	1 00	..	1,200	1 75	2,100	24
..	1	40	30	2	2	42	32	1 25	95	14,640	1 50	21,960	25		
..	4	60	40	8	6	68	46	1 00	87½	10,811	1 80	18,709	26		
..	5	2	60	30	12	5	72	35	95	8,618	1 74	14,990	27		
..	20	10	5	3	25	13	1 12½	95	3,414	1 75	5,875	28			
..	2	1	..	..	2	1	1 12½	1 12½	..	320	1 50	480	29
..	4	..	..	..	4	..	1 25	..	..	207	1 75	363	30
..	2	1	50	23	10	6	60	29	95	1,200	1 75	2,100	31		
..	25	12	2	1	27	13	1 06	95	4,000	1 60	6,400	32			
00	400	14	8	3	1	17	9	55	4,500	1 10	4,950	34			
..	4	2	1	..	5	2	1 25	1 00	900	2 00	1,800	35			
..	6	..	..	..	6	2	80	80	800	1 02½	1,300	36	
..	1	1	..	..	1	1	1 25	1 00	120	1 75	210	37	
..	9	7	4	1	10	8	1 15	1 00	2,840	1 60	4,544	38			
50	500	1	22	15	4	26	19	55	5,620	1 25	7,000	39			
..	2	45	4	4	1	49	5	1 12½	1 00	5,310	1 75	9,293	40		
..	..	3	..	..	3	..	..	..	1 00	458	1 75	812	41
..	..	20	8	3	2	23	10	95	95	9,000	1 75	15,750	42		
50	900	60	38	1195	635	228	154	1423	789	377,892	1 50	567,628	..

STATISTICS OF

MACON

Office number.....	Name of company or mine owner.	Name of operator.	No. of days worked.	Kind of opening			Depth of shaft.	Thickness of coal. Feet.	Kind of power.		How ventilated.	
				Strip-pit.	Slope.	Shaft.			Steam.	Hand.	Electricity.	Fan diam.
1	Bevier Black Diamond.....	Bevier Black Diamond..	240	1	...	...	60	4 6	1	...	...	12
2	James & Sons.....	James & Sons.....	200	1	...	...	50	4 4	1	...	...	1
3	Kansas & Texas Coal Co. .	K. & T. C. Co., M. No. 48	223	1	...	...	54	4	1	...	...	15
4	" " " " " " " "	No. 56	67½	1	...	...	4	4	1	...	...	...
5	" " " " " " " "	No. 57	45	1	...	...	4	4	1	...	...	...
6	" " " " " " " "	No. 61	289	1	...	...	4	4	1	...	...	12
7	" " " " " " " "	No. 68	211	1	...	...	4	4	1	...	...	...
8	" " " " " " " "	No. 69	168	1	...	...	4	4	1	...	...	...
9	" " " " " " " "	No. 66	179	1	...	...	4	6	1	...	...	...
10	Murlin Coal Co.....	Murlin Coal Co.....	230	1	...	...	55	4 6	1	...	...	12
11	Northwestern Coal Co.....	No. 8	174	1	...	...	140	4 6	1	...	...	14
12	Richmond, J. G.....	J. G. Richmond.....	252	1	...	...	60	4 6	1	...	...	12
13	Rowland, P. F.....	P. F. Rowland.....	80	1	...	...	4	6	1	...	...	1
14	The Helmet Mining Co.....	The Helmet Mining Co..	239	1	...	...	135	10	1	...	...	12
15	Thomas, Rowland.....	Rowland Thomas.....	145	1	...	...	130	4	1	...	...	1
16	Watson Coal Co.....	Watson Coal Co.....	285	1	...	...	85	4 6	1	...	...	12
			3032	10	3	4	...	...	8	7	2	2 2 8

MONROE

1	Grier, W. T.....	Grier & Pool.....	180	1	...	...	1 6	...	1	1	...	...
2	Henning, A. J.....	Wm. J. Montgomery.....	114	1	1 8	...	1	1
			294	2	2	2

MORGAN

1	Hubbard & Moore.....	Hubbard & Moore.....	60	1	50	...	1
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MONTGOMERY

1	Black Diamond.....	W. A. Lewis.....	130	1	45	2 6	1	1
2	Green, Ralston & Biddleman.....	Wm. Biddleman.....	161	1	85	2 6	1	1
			291	2	...	...	...	...	2	...	...	1

NODAWAY

1	Carpenter, Wroe.....	J. C. Pearson.....	240	1	...	...	72	1 10	1	...	...	1
2	Davis, J. S.....	J. S. Davis.....	165	1	...	...	41	1 4	1	...	...	1
3	Headrick, Jos.....	P. R. Halsey.....	180	1	...	...	42	1 4	1	...	...	1
4	Potts, W.....	W. L. Moore.....	180	1	...	...	20	1 8	1	...	...	1
	Totals.....		765	4	...	...	...	...	4	...	...	2 2

AL MINES—Continued.

UNTY.

Amount and cost of powder.		Mules worked	Employees.						Price paid for mining.		Tons of coal mined..	Price paid per ton at mines.....	Amt. received for total output, year ending June 30, 1900.	Office number,
			Miners.		Others.		Total.							
No. of kegs	Cost.....	Summer.....	Winter....	Summer..	Winter....	Summer..	Winter....	Summer..	Winter....					
1,303 12	2,606 24	12 12	72 6	74 2	27 1	95 7	99 2	55 75	55 75	49,611 2,300	\$1 10 1 25	57,014 25,875	1 2	
1,171 75	2,342 150	...	55 10	55 10	25 4	25 14	80 14	56½ 56½	55 55	29,747 2,189			3 4	
212	424	...	66	66	25	25	91	56½	55	38,724			5	
4,036	8,072	...	160	160	77	77	237	56½	55	107,181	1 07	253,480	6	
1,002	2,004	...	40	40	16	16	56	56½	55	19,626			7	
615	1,230	...	20	20	10	10	30	56½	55	12,972			8	
812	1,624	...	64	64	40	40	104	56½	55	26,467			9	
2,310	4,620	23	300	230	9	9	309	55	55	78,821	1 10	87,280	10	
...	...	4	...	140	...	17	...	157	...	18,085			11	
2,848	5,696	22	123	53	32	19	156	55	55	74,188	1 05½	97,348	12	
8	16	...	1	...	...	...	3	100	...	100	1 00	160	13
...	...	3	...	...	...	...	...	...	...	120	2 12½	255	14
500	1,000	4	75	75	30	20	105	65	65	32,206	1 20	38,648	15	
60	120	...	7	2	...	...	7	75	75	1,500	1 25	1,875	16
3,757	7,504	16	140	125	25	23	165	55	55	101,400	1 06	107,705	17	
18,721	\$37,432	77	64	1142	1116	321	310	1463	1426	595,297	1 08	\$646,649		

UNTY.

...	29	1	...	29	1	75	75	490	1 35	648	1
...	29	2	...	29	2	1 00	87½	342	1 25	428	2
...	4	3	...	4	3	822	\$1 31	\$1,076	

UNTY.

...	2	1	...	3	300	90	270	1
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UNTY.

6	\$15 00	...	5	2	...	5	2	75	75	800	\$1 25	\$1,000	1
3	6 10	...	5	5	...	5	5	90	70	875	1 42	1,245	2
9	\$21 10	...	10	7	...	10	7	1,675	\$1 34	\$2,245	

UNTY.

...	...	...	6	2	1	...	7	2	\$1 35	\$1 10	1,250	\$2 35	\$2,937	1
...	...	...	5	...	1	...	6	...	1 75	...	721	2 50	1,802	2
...	...	...	29	2	...	...	29	2	1 40	1 40	200	2 00	400	3
...	...	...	29	2	...	...	29	2	1 75	1 75	200	2 25	450	4
...	...	...	15	6	2	...	17	6	...	...	2,371	2 36	5,589	

STATISTICS OF

PUTNAM

Office number.....	Name of company or mine owner.	Name of operator.	No. of days worked.	Kind of opening			Depth of shaft.....	Thickness of coal.....	Kind of power.	How ventilated.
				Shaft.....	Slope.....	Strip-pit.....				
1	Blackbird Coal Co.....	Blackbird Coal Co.....	230	1	..	..	53	6	1	..
2	Emporia Coal Co.....	Jno. J. Price & Bros.....	202	1	..	..	110	10	1	..
3	Fielding & Sons, Thos.....	Thos. Fielding & Sons...	177	..	1	..	..	10	1	..
4	Guffey, Alex.....	Alex. Guffey.....	90	..	1	..	..	..	1	..
5	M. C. & M. C., No. 7.....	Medling & Hewett.....	138	..	1	..	..	..	1	..
6	Mendota Coal & Mining Co.	Mendota C. & M. Co.....	237	1	1	..	67	10	1	1
7	Rogers Bros.	Rogers Bros.....	188	..	1	..	..	3	1	..
Totals			1,392	3	2	3	..	3	2	3

RALLS

1	Adkerson, John.....	John Adkerson.....	152	..	1	..	..	2	4	..
2	Fitzpatrick, Bros.....	Fitzpatrick Bros.....	237	1	..	..	59	2	6	..
3	Ralls County Coal Co.....	Ralls County Coal Co. ..	250	1	..	..	45	2	2	..
Totals			639	2	1	..	..	..	1	2

RANDOLPH

1	Bradley, D. T.....	D. T. Bradley.....	196	1	..	..	60	4	..	1
2	Brown & Wellsly.....	Brown & Wellsly.....	100	1	..	..	80	3	4	..
3	Cooper & Stackhouse.....	Cooper & Stackhouse. ..	240	1	..	..	125	4	1	..
4	Elliott Coal Co.....	Elliott Coal Co., Elliott	176	1	..	..	145	4	1	..
5	" "	" " San Diego	200	..	1	..	..	4	6	..
6	Enterprise Coal Co.....	John Cronan.....	240	..	1	..	..	4	..	1
7	Higbee Coal Co.....	Higbee Coal Co.....	241	1	..	..	175	3	10	1
8	Hunt Bros.....	Hunt Bros.....	180	..	1	..	..	3	9	..
9	Interstate Mining Co.....	Interstate Mining Co. ..	78	1	..	..	110	3	9	1
10	Jones & Davis.....	Jones & Davis No. 7.....	187	1	..	..	96	4	1	..
11	" "	" " 5.....	179	..	1	..	..	4	1	..
12	" "	" " 9.....	183	1	..	..	94	4	1	..
13	Lewis & Sons, J. J.....	J. J. Lewis & Sons.....	106	..	1	..	..	4	..	1
14	Mitchell, W. E.....	W. E. Mitchell.....	208	..	1	..	..	4	..	1
15	Morris, John.....	John Morris.....	145	..	1	..	..	3	8	1
16	Robinson, James F	James F. Robinson.....	250	..	1	..	..	4	..	1
17	Ward, Harry.....	Harry Ward.....	120	1	..	..	88	3	10	1
Totals.....			2,930	9	2	6	..	..	7	9

L MINES—Continued.

NTY.

Amount and cost of powder.		Mules worked	Employees.						Price paid for mining.		Tons of coal mined..	Price paid per ton at mines.....	Amt. received for total output year ending June 30, 1900.	Office number.....
			Miners.		Others.		Total.		Winter.....	Summer...				
No. of kegs	Cost.....	Summer...	Winter.....	Summer..	Winter....	Summer..	Winter....	Summer...			Winter.....	Summer...		
.....	3 2	25	15	5	3	30	18	\$ 75	\$ 75	6,100	\$1 15	\$7,015	1
.....	29	29	6	6	35	35	75	75	75	11,475	1 26	14,458	2
.....	1 1	14	6	3	3	17	9	74	70	3,812	1 24	4,764	3
.....	4	.....	.....	.....	4	.....	700	62½	.....	700	1 00	700	4
.....	1 1	9	4	1	1	10	5	85	85	1,498	1 22	1,828	5
.....	15 15	250	230	43	41	293	271	74	70	76,938	1 23	94,447	6
.....	1 1	20	10	3	1	23	11	85	70	5,680	1 20	7,320	7
.....	21 20	351	294	61	55	412	349	.....	.....	106,203	1 22	130,532	

NTY.

.....	.....	2	1	.....	2	1	\$1 00	\$1 00	256	\$1 25	\$320	1
.....	.....	15	10	1	16	11	80	80	6,000	1 20	7,200	2
.....	3 3	32	27	9	7	41	34	80	80	14,700	1 10	16,258	3
.....	3 3	49	38	10	8	59	46	.....	20,956	1 13	23,778	

NTY.

50	100	1	4	.....	1	.....	5	.....	75	.....	800	1 00	800	1
35	70	.....	4	.....	1	.....	5	.....	76	.....	740	1 25	825	2
400	800	3 3	20	20	6	6	26	26	55	55	8,609	1 25	10,151	3
.....	.....	8 8	110	110	23	23	133	133	80	80	51,448	1 10	57,612	4
1,087	2,174	4 4	60	60	9	9	69	69	55	55	48,990	86	41,125	5
150	300	1 1	6	4	2	1	8	5	75	75	3,448	1 25	4,310	6
.....	.....	5 5	129	115	26	24	155	139	55	55	60,587	1 25	75,734	7
75	150	1 1	7	7	2	2	9	9	75	75	3,000	1 20	3,600	8
30	60	5	95	.....	20	.....	116	.....	80	.....	11,378	1 12	11,875	6
1,482	2,964	4 4	69	65	6	6	75	71	55	55	31,460	87½	27,370	10
978	1,956	6 6	100	88	8	8	108	96	55	55	49,666	87½	43,458	11
478	856	4 4	52	48	4	4	56	52	55	54	23,488	87½	20,552	12
106	212	1 1	5	3	1	1	6	4	75	75	2,766	1 20	3,319	13
85	170	1 1	10	3	2	1	12	4	75	75	3,319	1 30	4,315	14
11	22	1 1	4	2	1	.....	5	2	55	25	641	1 00	641	15
60	120	1 1	5	2	1	.....	6	2	75	75	1,920	1 25	2,295	16
20	40	.....	3	.....	2	.....	5	.....	55	55	857	1 37½	1,179	17
5,047	10,094	40 40	684	527	115	85	799	612	.....	.....	303,133	1 02	309,161	.....

Office number.	Name of company or mine owner.	Name of operator.	No. of days worked.	Kind of opening			Depth of shaft.	Thickness of coal.	Kind of power.			How ventilated.
				Shaft.	Slope.	Scarp-pit.			Steam.	Hand.	Horse.	
1	Blair, Andrew.....	Andrew Blair.....	145	1	...	...	50	...	1	...	...	1
2	Chenault, A. R.....	A. R. Chenault.....	105	1	...	...	50	...	1	...	...	1
3	Olimax Coal Mine.....	W. H. Blunt.....	120	1	...	...	160	...	1	...	...	1
4	Daugherty, Sam'l.....	W. O. Ward.....	175	1	...	...	65	...	1	...	...	1
5	Diamond.....	Chas. F. Crispen.....	105	1	...	...	87	...	1	...	...	1
6	Duncan, Henry.....	Henry Duncan.....	70	...	1	...	6	...	1	...	...	1
7	Fowler Coal Co.....	Fowler Coal Co.....	150	1	...	...	40	...	1	...	...	1
8	Hayson, Rob't.....	Robt. Hayson.....	240	1	...	...	80	...	1	...	...	1
9	Herner, H. W.....	H. W. Herner.....	50	...	1	...	4	...	1	...	...	1
10	Hubbell, Lease. W. M.....	W. M. Hubbell.....	110	1	...	...	110	...	1	...	...	1
11	Huston, Jos.....	Jos. Huston.....	120	...	1	...	16	...	1	...	...	1
12	Kansas & Texas Coal Co.....	K. & T. C. Co., No. 30.....	32	1	...	...	70	...	1	...	...	1
13	Kallenberger, John J.....	Jno. J. Kallenberger.....	40	...	1	...	110	...	1	...	...	1
14	King, R. A.....	James Dorhn.....	90	...	1	...	1	...	1	...	...	1
15	Loeven, Jos.....	Jos. Loeven.....	180	...	1	...	18	...	1	...	...	1
16	Marshall Mine.....	Jas. M. Edgar.....	108	...	1	...	6	...	1	...	...	1
17	Mercantile Coal Co.....	M. C. Co., No. 7.....	231	1	...	...	100	...	1	...	...	1
18	Murlin Coal Co., K. & T. C. Co.....	W. E. Murlin.....	148	1	...	...	70	...	1	...	...	1
19	Pence Bros. & Calnen.....	Pence Bros. & Calnen.....	150	1	...	...	85	...	1	...	...	1
20	Pickering, Jos.....	Pickering Coal Co.....	172	1	...	...	107	...	1	...	...	1
21	Rankin Mine.....	A. F. Rankin.....	130	...	1	...	28	...	1	...	...	1
22	Ray Co. Brick, Tile & Coal Co.....	W. J. Lynch.....	200	...	1	...	28	...	1	...	...	1
23	Richmond & Camden Coal Co.....	R. & C. C. Co., Mines 1, 2, 4, 5, 9, 12 and 14.....	160	7	...	...	50 120	...	6	1	...	12 30
24	Seirer, Chas.....	Ottman & Swopes.....	200	...	1	...	2	5	...	1	...	1
25	The Grimes Mine.....	Hugh Blair.....	110	1	...	...	190	...	1	...	...	1
26	Williams Coal Co.....	R. J. Williams.....	250	1	...	...	110	1	8	...	1	1
27	Wilson, Mrs. Mary.....	W. Wilson.....	196	1	...	...	110	2	2	1	...	1
Totals.....			3,787	23	3	7	...	12	11	10	...	53

SALINE

1	Terrill, H. C.....	Maupin & Fulkerson....	170	...	1	...	1	6	...	1	...	1
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ST. CLAIR

1	Allison, R. W.....	R. W. Allison.....	120	1	...	3	6
2	Griggs, L. L.....	L. L. Griggs.....	130	...	1	1	8	...	1	1
3	Hoover Mines.....	Thos. Greathouse.....	60	...	1	2	6	...	1	1
4	.....	W. A. Seymour.....	90	1	...	...	62	2	6	...	1	1
5	Knierim, John.....	Knierim Sons.....	40	1	...	...	20	2	6	...	1	1
6	Mims, Chas.....	Chas. Mims.....	90	...	1	...	...	3	7	...	1	1
7	Oliver, A.....	Oliver & St. Clair.....	100	...	1	...	...	2	3	...	1	1
8	Short Estate.....	J. M. Short.....	40	...	1	...	...	3	...	1	...	1
9	Woodson, H. M.....	H. M. Woodson.....	50	1	...	...	20	3	...	1	...	1
Totals.....			720	3	3	1	2	...	4	3	...	6

MINES—Continued.

Y.

Amount and of powder.	Mules worked	Employees.			Price paid for mining.		Tons of coal mined.	Price paid per ton at mines.....	Amt. received for total output year ending June 30, 1900.	Office number.....
		Miners.	Others.	Total.	Winter....	Summer....				
No. of tons	Cost.....	Winter....	Summer....	Winter....	Summer....	Winter....	Summer....			
...	...	2	1	3	\$1 00	...	585	\$1 75	\$1,026	1
...	...	4	2	6	95	...	560	1 75	938	2
...	...	1	1	2	1 25	...	740	2 50	1,850	3
...	...	6	1	7	95	\$ 87½	1,112	1 68	1,868	4
...	...	10	1	11	95	95	1,100	1 75	1,925	5
...	...	2	1	3	95	...	200	1 75	350	6
...	...	4	1	5	1 00	1 00	900	1 75	1,575	7
...	...	4	2	6	95	95	1,920	1 75	3,976	8
...	...	1	1	2	1 00	...	150	2 00	300	9
...	...	50	6	56	95	...	9,000	1 60	15,000	10
...	...	4	...	4	1 50	...	605	2 00	1,210	11
...	...	60	10	70	...	95	2,810	1 25	3,512	12
...	...	5	...	5	1 50	...	312	2 00	625	13
...	...	3	...	3	1 00	...	500	1 50	750	14
...	...	2	...	2	1 50	1 25	1,288	1 87½	2,415	15
...	...	2	...	2	1 25	...	410	1 85	757	16
...	...	95	12	107	95	95	37,854	1 40	52,995	17
...	...	85	19	104	95	95	24,558	1 25	30,697	18
...	...	125	4	129	95	95	25,011	1 45	37,716	19
...	...	1	6	7	95	95	11,314	1 74	19,728	20
...	...	45	9	54	85	...	6,902	1 75	11,778	21
...	...	10	2	12	1 50	1 50	4,016	2 00	8,032	22
...	...	14	10	24	95	95	83,700	1 47	120,000	23
...	...	1	5	6	95	95	2,550	1 50	3,825	24
...	...	4	1	5	95	...	730	1 75	1,277	25
...	...	40	20	60	1 00	87½	13,188	1 40	18,453	26
...	...	2	36	38	95	87½	10,587	1 48	15,669	27
...	...	30	27	57	243,502	1 47	358,247	28

Y.

...	...	2	2	...	2	2	\$1 50	\$1 50	500	\$2 50	\$1,250	1
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Y.

...	...	2	2	...	2	2	480	\$1 33	\$638	1	
...	...	2	2	...	2	2	...	\$1 12½	571	1 85	1,056	2	
...	...	3	3	...	3	3	...	80	240	2 50	600	3	
...	...	3	3	...	3	3	...	1 00	544	1 75	951	4	
...	...	6	2	2	2	2	...	1 00	377	1 40	528	5	
15	\$30 00	1	1	2	2	1	...	75	360	1 25	450	6	
...	...	2	2	...	2	2	...	...	900	1 30	1,170	7
...	...	2	...	...	3	...	...	75	220	1 25	275	8
10	17 50	...	...	...	2	...	...	62½	200	1 25	250	9
25	\$47 50	1	1	22	6	7	2	29	8	3,892	1 52	5,918	

SCHUYLER

Office number.....	Name of company or mine owner.	Name of operator.	No. of days worked.	Kind of opening		Depth of shaft.....	Thickmess of coal..... Feet...	Kind of power.	How ventilated.		
				Slope.....	Strip-pit.....						
										Drift.....	
				Feet.....	Inches.....	Steam.....	Horse.....	Hand.....	Electricity.....	Natural.....	Feen-diam. Furnace.....
1	Cloakey, R.....	Mock & Watson.....	130	1	.....	24	4	.....	1	.....	1
2	Golston, Ira.....	Ira Golston.....	90	1	.....	60	2	4	.....	1	.....
			210	2	.....				2	.....	1

1	Arthur Coal & Mining Co...	Frank Williams.....	169	1	1	5	4	1	1	1
2	Auger, B. F., Hill Minc...	B. F. Auger.....	75	1	1	2	6	1	1	1
3	Baker, Frank.....	Frank Baker.....	80	1	1	2	7	1	1	1
4	Bedford Coal & Mining Co.	David L. Hughes.....	140	1	1	3	7	1	1	1
5	Bryan, Geo.....	Geo. Bryan.....	20	1	1	2	7	1	1	1
6	Central Coal & Coke Co....	C. C. & C. Co., M. No. 14	166	1	1	114	5	1	1	16
7	Chaney, M.....	M. Chaney.....	25	1	1	2	1	1	1	1
8	Low, J. A.....	J. A. Lowe.....	180	1	1	2	8	1	1	1
9	Mayberry, F. M.....	F. M. Mayberry.....	221	1	1	3	4	1	1	1
10	Rich Hill Coal & Mining Co	R. H. C. & M. Co., M. No. 17	22	1	1	142	4	1	1	5
11 No. 21	208	1	1	87	3	6	1	1
12	Radde, F. M.....	F. M. Radde.....	10	1	1	3	1	1	1	1
13	Vernon Coal Co.....	Vernon Coal Co.....	165	1	1	120	4	1	1	10
			1,472	4	4	1	4	5	2	4

AL MINES—Continued.

JUNTY.

Office number.....	Amt. received for total output year ending June 30, 1900.	Price paid per ton at mines	Tons of coal mined..	Price paid for mining.		Employees.			Mules worked	Amount and cost of powder.
				Summer....	Winter....	Total.	Others.	Miners.		
1	\$4,666 650	\$1 25	3,733 520	87%	87%	Summer....	Winter....	Summer....	Summer....	Cost.....
2	\$5,316	\$1 25	4,253			Winter....	Summer....	Winter....	No. of kegs	

ITY.

1,200	2,400 00	3 3	30	30	10	10	40	40	58	58	26,662	1 15	30,661	1
5	9 25	..	25	.....	.....	.....	2	3	.....	.....	234	1 32½	310	2
280	578 00	3 3	15	15	3	2	18	17	50	50	400	1 25	500	3
.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	7,068	1 65	6,715	4
.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	80	1 12½	90	5
4,516	9,032 00	13 13	140	120	30	25	170	145	50	50	107,427	1 10	118,170	6
.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	90	1 00	90	7
63	103 95	.....	3	4	.....	.....	4	4	75	75	720	1 25	899	8
78	156 00	.....	3	3	.....	.....	3	3	.....	.....	2,400	1 25	3,050	9
.....	.....	.....	.....	.....	.....	.....	.....	35	.....	.....	2,061	98	1,929	10
2,905	5,810 00	7 7	64	64	29	29	93	93	50	50	50,980	98	49,535	11
.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	55	1 75	96	12
2,399	4,798 00	10 10	60	60	7	7	67	67	50	50	31,100	95	29,608	13
.....	.....	.....	.....	.....	.....	.....	.....	.....	55	55	.....	.....	.....	.....
1,455	22,887 20	36 36	321	323	85	81	406	404	.....	.....	229,343	1 05	241,653	

TABLE X—Showing rank of coal producing counties in order of production for each of past ten years.

Counties.	1891.		1892.		1893.		1894.		1895.		1896.		1897.		1898.		1899.		1900.		
	Rank.	Prod'ct, tons.	Rank.	Prod'ct, tons.	Rank.	Prod'ct, tons.	Rank.	Prod'ct, tons.	Rank.	Prod'ct, tons.	Rank.	Prod'ct, tons.	Rank.	Prod'ct, tons.	Rank.	Prod'ct, tons.	Rank.	Prod'ct, tons.	Rank.	Prod'ct, tons.	
1	Bates	1	736,283	2	659,924	2	627,514	4	291,271	3	252,231	2	375,300	2	410,304	3	343,878	2	441,963	3	363,577
2	Macon	2	454,029	1	685,335	1	788,563	1	511,566	1	539,120	1	519,649	1	490,601	1	720,999	1	739,293	1	595,297
3	Lafayette	3	352,603	3	347,600	3	371,928	2	296,931	2	256,761	3	307,296	3	284,448	3	347,857	3	382,608	2	377,402
4	Ray	4	282,247	5	272,948	4	319,405	6	196,852	6	150,998	6	149,083	6	157,652	6	215,348	6	232,663	5	243,592
5	Randolph	5	224,758	4	297,011	6	219,762	5	209,656	5	218,774	5	230,194	5	243,012	5	314,842	4	354,830	4	303,133
6	Henry	6	144,139	6	137,258	8	125,962	8	84,473	9	99,058	9	78,551	8	76,023	10	68,281	9	81,373	9	129,902
7	Putnam	7	123,526	7	134,984	7	145,641	7	119,832	7	111,572	8	85,032	7	101,330	7	121,932	7	126,673	10	106,203
8	Vernon	8	64,303	8	119,036	5	234,376	3	297,599	4	237,965	4	303,886	4	281,994	5	252,134	5	298,362	6	229,343
9	Barton	9	63,026	9	108,784	9	61,301	10	55,767	10	76,242	12	37,570	9	70,554	8	104,223	11	67,844	8	141,520
10	Grundy	10	28,983	13	28,670	12	35,770	12	35,000	12	37,290	10	41,000	11	35,402	12	39,974	13	39,633	13	42,371
11	Linn	11	28,036	11	35,588	10	48,302	9	71,807	8	100,179	7	92,022	10	67,985	9	83,041	10	72,061	11	81,130
12	Boone	12	23,577	14	21,058	14	25,002	17	19,038	14	21,090	15	20,428	18	14,127	16	16,780	14	29,665	17	19,179
13	Caldwell	13	22,661	10	38,333	13	29,020	14	22,869	16	17,876	16	19,790	16	20,000	14	23,000	15	28,000	14	26,000
14	Andrain	14	19,569	12	29,702	11	42,292	11	43,910	11	40,918	11	37,611	12	35,167	13	36,498	12	40,759	12	43,530
15	Adair	15	17,110	17	14,820	16	20,957	15	20,744	13	24,540	13	23,510	13	27,078	11	62,215	8	104,868	7	161,577
16	Callaway	16	15,581	15	16,551	15	23,961	13	23,223	15	18,771	14	22,182	15	20,152	15	21,281	17	22,356	18	15,120
17	Montgomery	17	13,124	16	16,030	17	15,923	19	12,175	18	10,900	18	10,736	17	15,200	26	2,740	27	2,670	20	1,675
18	Johnson	18	10,530	18	10,485	18	12,101	18	15,427	19	8,873	24	3,931	23	3,770	21	4,318	23	4,710	20	8,455
19	Clay	19	8,289	.....	.....	.....	7,139	16	19,371	23	4,000	20	6,500	19	9,000	30	1,500	20	8,000	19	12,800
20	Saline	20	7,961	22	4,440	26	1,865	20	1,875	24	3,682	32	432	32	1,281	35	740	32	1,320	34	500
21	St. Clair	21	3,866	21	5,403	21	6,517	22	3,397	21	5,487	23	4,038	21	5,452	23	8,596	23	4,210	22	3,866

STATE MINE INSPECTOR.

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25	Cole, average 7 yrs.	25	2,000	27	1,548	27	1,200	28	2,000	22	1,120	...	22	3,794	22	3,704	19	8,600	
26	Cedar.....	26	1,204	23	4,181	33	890	33	730	31	1,500	28	1,863	27	2,178	32	1,244	30	2,116	31	1,095
27	Charlton.....	27	1,170	25	2,312	28	1,136	34	185	28	1,858	33	355	29	1,573	24	3,488	24	4,517	25	2,940
28	Jasper.....	28	633	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29	Ralls.....	29	614	32	280	25	2,160	23	4,400	20	8,489	19	9,644	20	7,843	18	7,768	18	16,014	15	20,956
30	Sullivan.....	30	560	19	8,800	31	1,000	21	6,600	34	1,000	...	...	...	...	...	...	...	...	...	...
31	Pettis, average 5 yrs.	...	...	31	433	34	181	30	1,738	...	...	...	30	1,470	19	5,400	26	3,200	...	...	...
32	Moniteau.....	31	476	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
33	Schuyler.....	32	280	30	766	32	682	24	3,556	30	1,620	26	2,440	28	2,022	25	2,921	21	5,304	21	4,283
34	Livingston.....	33	200	29	1,000	30	1,000	32	800	33	1,050	29	1,155	31	1,468	27	1,817	34	800	23	3,813
35	Miller.....	34	130	33	127	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
36	Morgan.....	35	36	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
37	Monroe.....	36	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
38	Lincoln.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
39	Carroll, average 7 yrs.	...	...	28	1,360	29	1,088	31	920	26	2,664	27	2,304	26	2,225	34	803	28	2,397	30	1,575
40	Jackson, av. 6 yrs.	...	...	...	...	22	4,819	20	6,720	17	14,632	17	18,600	14	21,028	17	15,000	16	25,125	16	20,900
41	Howard, av. 3 yrs.	...	...	...	...	...	...	...	...	25	3,460	25	3,220	25	2,240	...	35	456	24	2,944	...
42	Oss, 3 years.	...	...	...	...	...	...	...	...	...	...	30	1,000	33	1,206	29	1,558	31	1,321	26	2,745
	Totals.....	...	2,650,018	...	3,017,285	...	3,190,442	...	2,363,322	...	2,283,061	...	2,420,147	...	2,429,368	...	2,838,152	...	3,191,811	...	2,985,022

The following tables are taken from the Engineering and Mining Journal:

Fatal Accidents in Coal Mines in 1899, Compared with Five Previous Years, 1894-1898.

	No. persons killed, yearly average—1894-'98....	No. persons killed, yearly average—1899.....	Rate per 1,000 employed—1894-'98.....	Rate per 1,000 employed—1899.	Increase or decrease per 1,000, 1899.....
Colorado.....	34	41	4.83	5.60	+ 0.77
Illinois.....	74	84	2.21	2.27	+ 0.06
Indiana.....	22	16	2.84*	2.07	- 0.77
Indian Territory.....	14	25	3.98	6.24	+ 2.26
Iowa.....	22	20	2.35	2.49	+ 0.14
Kansas.....	14	16	1.57	1.57	+ 0.00
Kentucky.....	8	7	1.05	0.83	- 0.22
Maryland.....	6	5	1.50	1.08	- 0.42
Missouri.....	13	14	1.84	1.80	- 0.04
New Mexico.....	12	15	7.72*	7.98	+ 0.26
Ohio.....	46	57	1.56	2.03	+ 0.47
Pennsylvania (anthracite).....	439	461	3.03	3.28	+ 0.25
Pennsylvania (bituminous).....	161	258	1.88	2.82	+ 0.94
Tennessee.....	20	20	3.19	2.60	- 0.59
Utah.....	2	2	3.20	3.20	- 0.00
Washington.....	22	42	7.24	28.00	+ 20.76
West Virginia.....	72	89	3.27	3.55	+ 0.28
British Columbia.....	7	11	2.55	2.91	+ 0.36
Nova Scotia.....	9	19	1.64	3.39	+ 1.75
Totals.....	997	1,200	2.55	2.99	+ 0.44

*The data for Indiana and New Mexico are for the four year period, 1895-1898.

Twelve of the above states and provinces show an increased rate, while only seven show a decrease of fatal accidents, Missouri making one of the seven.

The total of fatal accidents in the coal mines of Missouri from 1890 to 1894 inclusive, numbered 88, while for the years 1895 to 1899 inclusive, there were but 60 fatal accidents, showing a decrease for the last five years of nearly 32 per cent. The average for the above decade has been 14.80 per year, while for our fiscal year ending June 30, 1900, there were but 10 fatal accidents.

he following tables go to show that while coal mining may be
 ered extra hazardous yet not more so than the railroad in-
 :

*Table of Fatal Accidents in Coal Mining in North America,
 1890-1899.*

	No. of employes.	No. killed.....	Rate per 1,000...
.....	288,205	701	2.43
.....	325,840	1,076	3.30
.....	342,744	859	2.51
.....	374,017	919	2.46
.....	377,626	864	2.27
.....	387,303	1,020	2.63
.....	391,990	1,091	2.78
.....	393,025	909	2.31
.....	395,553	1,004	2.54
.....	401,868	1,400	2.99
als.....	3,678,171	9,713	2.64

*Fatal Accidents in Coal Mining and the Railroad Service.**

(Per 1,000 Persons Employed.)

	Coal miners.	Railroad employes.
.....	2.43	3.27
.....	3.30	3.39
.....	2.51	3.11
.....	2.46	3.12
.....	2.47	2.34
.....	2.63	2.31
.....	2.78	2.25
.....	2.31	2.06
.....	2.54	2.24
.....	2.99	2.38
ls.	2.64	2.64

he coal mining accident rate is for North America; the railroad accident rate for the
 s of the United States reporting to the Interstate Commission.

LIST OF PROPRIETORS AND OPERATORS.

ADAIR COUNTY.

Proprietor.	Operator.	Postoffice address.
American Fuel Co.....	American Fuel Co.....	Stahl.....
Besanko, Robert.....	Robert Besanko.....	Fegley.....
Quiler, Wm. & G.....	Thomas Scott.....	.....
Havens & Co., C. B.....	C. B. Havens & Co.....	Omaha, Neb.....
Paris, John.....	John Paris.....	Novinger.....
McCabe, P.....	P. McCabe.....	Fegley.....
Mainwald, Karl.....	Karl Mainwald.....	Stahl.....
Motter, Noah.....	F. J. Miller.....	.....
Rombauer Coal Co.....	Rombauer Coal Co.....	Novinger.....
Scott, D. O.....	D. O. Scott.....	Kirksville.....
Stroup & Son., J. F.....	J. F. Stroup & Son.....	Stahl.....

AUDRAIN COUNTY.

Carr, Paris.....	Paris Carr.....	Benton City.....
Farber Coal Co.....	Lander & Peterson.....	Farber.....
Hafner, O. F.....	Jos. Holtcamp.....	Worcester.....
Johnson, R. E.....	G. W. McGuire.....	Martinsburg.....
Krieger Coal Co.....	Oscar Krieger.....	".....
Standard Coal Co.....	Standard Coal Co.....	Vandalla.....
Vandalla Coal Co.....	Vandalla Coal Co.....	".....

BARTON COUNTY,

Bell, J. W.....	J. W. Bell.....	Lamar.....
Betz, John.....	John Betz.....	Liberal.....
Boulware, George.....	George Boulware.....	".....
Brenogel, W. F.....	W. F. Brenogel.....	".....
Chancellor, H. C.....	H. C. Chancellor.....	Minden Mines.....
Divine, W. B.....	W. B. Divine.....	Newport.....
Fogelsong, J. W.....	J. W. Fogelsong.....	Lamar.....
Hall & Fletcher.....	Hall & Fletcher.....	Minden Mines.....
Joyce, A. H.....	Benj. Waters.....	Liberal.....
Kiser & Aleshire.....	D. F. Aleshire.....	".....
Lasley, M.....	George Claunch.....	Midden Mines.....
Lasley, F. D.....	F. D. Lasley.....	".....
Lasley, W. B.....	W. B. Lasley.....	".....
Prosser, John J.....	A. T. Bailey.....	Liberal.....
Sanford Bros. Mer. Co.....	Sanford Bros. Mer. Co.....	Minden Mines.....
Spear, M. M.....	M. M. Spear.....	Lamar.....
Still, W. H.....	W. H. Still.....	Boston.....
Short, Josiah.....	Josiah Short.....	Minden Mines.....
Swigart & Sons.....	Swigart & Sons.....	".....
Travis, Jos.....	Jos. Travis.....	Liberal.....
Waltman, J. H.....	J. H. Waltman.....	Lamar.....
Western Coal & M. Co.....	Western C. & M. Co.....	Pittsburg, Kans.....
Walser, G. H.....	Nicholson, Rogers & Co.....	Liberal.....
Wear Coal Co.....	Wear Coal Co.....	Pittsburg, Kans.....

BATES COUNTY.

Proprietor.	Operator.	Postoffice address.
kerman, Jas.....	Jas. Ackerman.....	Hume.....
oper, Benj.....	Benj. Cooper.....	Amsterdam.....
alg, T. A.....	T. A. Craig.....	Worland.....
eviston & Fitzpatrick.....	J. L. Oreviston.....	".....
liott, Jas.....	Jos. Elliott.....	".....
gels & Brooks.....	Engels & Brooks.....	Rich Hill.....
rton, C. E.....	C. E. Horton.....	Worland.....
ugh Bros.....	Fred. Hough.....	".....
ugh & Stringer.....	".....	".....
wis, O. H.....	John Gerodo.....	".....
rtin, F. M.....	F. M. Martin.....	Rich Hill.....
arson, Peter.....	Peter Pearson.....	".....
ice, Carswell & Co.....	Price, Carswell & Co.....	".....
inkin, J. C.....	J. C. Rankin.....	Worland.....
ch Hill Coal & M. Co.....	Rich Hill C. & M. Co.....	Rich Hill.....
".....	J. M. Wise.....	".....
".....	R. Pearson.....	".....
".....	Perry & Wilson.....	".....
".....	W. H. Lowder.....	".....
".....	Hines Bros.....	".....
".....	D. Reese.....	".....
".....	Bruce & Reese.....	".....
".....	W. Bruce.....	".....
".....	Stover & McMullen.....	Hume.....
".....	Denayer Bros.....	Rich Hill.....
".....	N. Bellier.....	".....
".....	Thos. Manchester.....	".....
".....	J. C. Griggs.....	".....
".....	E. A. Gee.....	".....
tephens Bros.....	Stephen Bros.....	Worland.....
hurman & Pitman.....	Fortner & Thomas.....	Hume.....
hurman & Son, W. C.....	W. C. Thurman and Son.....	".....
trout, W.....	W. Trout.....	Foster.....
Walnut Creek or Darby Hill.....	W. H. Mace.....	".....
Washburn, Henry.....	Henry Washburn.....	Worland.....
Western Mining Co.....	J. N. Tatley.....	".....

BOONE COUNTY.

leasley, W. H.....	Oliver Fainter.....	Harrisburg.....
uckler, H. T.....	H. T. Buckler.....	Buckner.....
arter Bros. Coal Co.....	Carter Bros.....	Columbia.....
olumbia Coal Co.....	R. E. Henry.....	".....
ordon, S. D.....	S. D. Gordon.....	".....
ood, T. B.....	T. B. Hood.....	Harrisburg.....
eeene, Jas. H.....	James H. Keene.....	Columbia.....
ckenzie, J. F.....	J. F. McKenzie.....	Harrisburg.....
ims, W. W.....	J. E. Taylor.....	Perche.....
stidham, W. A.....	W. A. Stidham.....	Harrisburg.....
White, J. H. & W. M.....	J. H. White.....	Rucker.....
Whitmarsh, Chancey.....	C. Whitmarsh.....	Harrisburg.....

CALDWELL COUNTY.

Caldwell Coal Co.....	Caldwell Coal Co.....	Hamilton.....
Dripping Springs C. Co.....	A. Bishop.....	Kingston.....

CALLAWAY COUNTY.

astle, Wm.....	Wm. Castle.....	Fulton.....
ulton Fire Brick & M. Co.....	Fulton Fire Brick & Mining Co.....	".....
arris, John.....	John Harris.....	".....
arsenkoff, J.....	John Marsenkoff.....	".....
mith Mine.....	Jas. Smith.....	".....
mith, Jas.....	J. W. Simmons.....	".....

CARROLL COUNTY.

Proprietor.	Operator.	Postoffice address.
Anwarter, H. D.....	H. D. Anwarter.....	Little Compton.....
Farr, R.....	D. H. Middleton.....	" "
Gallaher, Wm. P.....	D. Epperson.....	" "
Hughes, Wm.....	Wm. Hughes.....	" "
Ogle, W. F.....	W. F. Ogle.....	" "
Standard Mine.....	A. C. & J. R. Hooke.....	" "
Whitehead, Jas.....	Jas. Whitehead.....	Hale

CASS COUNTY,

Creighton Coal Co.....	Geo. Meidinger.....	Creighton.....
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CEDAR COUNTY.

Beebe, Ed. M.....	Ed. M. Beebe.....	Lebeck.....
Duncan, J. C.....	J. C. Duncan.....	Jerrico.....
Lloyd, E. A.....	N. D. W. Lloyd.....	" "
McLeod, J.....	J. M. Bridgewater.....	" "
Poague, G. M.....	G. M. Poague.....	" "
Schroder, C. M.....	C. M. Schroder.....	El Dorado Springs...
Young, J. H.....	J. H. Young.....	Filley.....

CHARITON COUNTY.

Applegate, L. M.....	M. L. Finnell.....	Keytesville.....
Bennett Bros.....	Bennett Bros.....	" "
Buffington, F. P.....	F. P. Buffington.....	" "
Farrar, Milton.....	Milton Farrar.....	Excello.....
Huenten, John.....	R. Brewer.....	Guthridge Mills.....
Isle, R. W.....	R. W. Isle.....	Indian Grove.....
Kahler, W. J.....	W. J. Kahler.....	Newcomer.....
Wachter, H.....	H. Wachter.....	Salisbury.....

CLAY COUNTY.

Missouri City Coal Co.....	Missouri City Coal Co.....	Missouri City.....
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COOPER COUNTY.

Hazell Springs Mining Co.....	Chas. W. Hazell	Boonville.....
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DADE COUNTY.

Finney, W. T.....	W. F. Finney.....	Sylvania.....
McCluey, Robt.....	Robt. McCluey.....	" "

GRUNDY COUNTY.

Proprietor.	Operator.	Postoffice address.
ounty Coal Co.....	F. F. Fulkerson.....	Trenton.....
Valley Coal Co.....	C. Tom Bailey.....	Gault.....

HENRY COUNTY.

os.....	Brown Bros.....	Lewis Station.....
L. L.....	L. L. Burgess.....	Piper.....
J. R.....	C. W. Field.....	Windsor.....
vid.....	W. Clapp.....	Appleton City.....
ion Coal Co.....	David Clark.....	Montrose.....
reek Coal Co.....	Co-operation C. & M. Co.....	Windsor.....
sons.....	Blanchard, Thompson & Co.....	Brownington.....
ine.....	R. B. Dalley.....	Clinton.....
Chas.....	W. S. Dickey.....	Deepwater.....
Wm.....	Chas. Engeman.....	Montrose.....
Theo.....	Wm. England.....	Clinton.....
Jas.....	Theo. Geahart.....	Sparrow.....
V. E.....	J. D. Graham.....	Windsor.....
a.....	W. E. Hughes.....	Windsor.....
R.....	Iva Hurst.....	Deepwater.....
al & Coke Co.....	J. Hurst.....	".....
ine.....	M. Hurburt.....	Clinton.....
W. T.....	Jordan Coal & Coke Co.....	".....
J.....	Jas. Dawson.....	Deepwater.....
hn.....	John Hurst.....	Windsor.....
nice R.....	L. M. Beaman.....	Garland.....
al Co.....	John Owen.....	Calhoun.....
l.....	Eunice R. Parks.....	Deepwater.....
D. C.....	T. A. Pharis.....	Lewis Station.....
, Wm.....	D. B. Pligg.....	Piper.....
, Wm.....	D. C. Rayburn.....	Deepwater.....
l.....	Wm. Reese, Sr.....	".....
s. W.....	Wm. Reese, Jr.....	".....
, J. W.....	Wm. Rusk.....	".....
l, John.....	Jas. W. Smith.....	Montrose.....
s.....	John Teemann.....	Brownington.....
M.....	John Thompson.....	Montrose.....
line.....	Jcs. Tyree.....	".....
hos. P.....	Wm. Lindimore.....	Clinton.....
	J. P. Watkins.....	Montrose.....
	John Koloie.....	

HOWARD COUNTY.

e.....	W. R. Graham.....	Fayette.....
oal Mine.....	R. S. Jackson.....	".....
Mine.....	Jas. Gray.....	".....

JACKSON COUNTY.

ek Coal & Mining Co.....	Brush Creek Coal & Mining Co.....	Kansas City.....
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JOHNSON COUNTY.

m, Thos.....	Thos. Boyd & Son.....	Knob Knoster.....
er, J. H.....	Edwin Hardin.....	Montserrat.....
Co., S. E.....	Hanna & Co.....	".....
L. B.....	M. B. Melley.....	Warrensburg.....
ine.....	Jos. Murley.....	Bristle Ridge.....
hard.....	Richard Park.....	Dunksburg.....

LAFAYETTE COUNTY.

Proprietor.	Operator.	Postoffice address.
Bell, W. H.	W. H. Bell	Corder
Bell & Greer	Bell & Greer	Lexington
Black Diamond	C. & R. Hohenwald	Corder
Bonanza Coal Co.	Sebastian W. Brandon	Higginsville
Carter Coal Co.	W. A. Carter	Wellington
Chanslor, C. A.	C. A. Chanslor	Lexington
Corder Coal Co.	Corder Coal Co.	Corder
Consolidated Farmers' Coal Co.	Consolidated Farmers' Coal Co.	Higginsville
DeBolt, J. H.	J. H. DeBolt	Corder
Diamond Coal Co.	Diamond Coal Co.	Lexington
Dover Coal Co.	Dover Coal Co.	Concordia
Ferking, H. F.	H. F. Ferking	Lexington
Gaffin, O. M.	O. M. Gaffin	Corder
Gelsendorfer, S. F.	S. F. Gelsendorfer	Concordia
Hendrix, Miss S. B.	E. J. Rush	Higginsville
Hoffman Mine	E. T. Hoffman	Concordia
Kresse, A. F.	A. F. Kresse	Wellington
Labor Exchange C. & M. Ass'n	Labor Exchange C. & M. Ass'n	St. Louis
Lexington Coal & M. Co.	Lexington Coal & M. Co.	Higginsville
Longest, J. R.	J. S. Stephenson	Kansas City
Looney, J. H.	J. H. Looney	Lexington
McGrew, J. C.	J. C. McGrew	Kansas City
Macey Estate, Henry	Henry Macey Estate	Mayview
Mayview Coal Co.	Lewis & Fisher	Corder
Morgan, W. P.	W. P. Morgan	Bates City
Perry, Thos.	Thos. Perry	Lexington
Rosewell Bros.	Jas. Rosewell & Bros.	Corder
Salt Fork Coal Co.	Salt Fork Coal Co.	Mayview
Sebastian Coal Co.	Estate Wm. Sebastian	Waverly
Silver Creek Coal Co.	Silver Creek Coal Co.	Dunksburg
Stucker, Fred	Fred Stucker	Mayview
Summers, M. W.	M. W. Summers	Lexington
Walton Mine	Seth Spruce	Waverly
Walton, Thos.	Thos. Walton	Kansas City
Waverly Coal & M. Co.	Waverly Coal & M. Co.	Higginsville
Wellington C. & M. Co.	Wellington C. & M. Co.	Wellington
Woskoski, M.	M. Woskoski	
Zeitz, L. B.	L. B. Zeitz	

LINN COUNTY.

Brookfield Coal Co.	Brookfield Coal Co.	Brookfield
Burdall Mine	J. Burdall	
Landreth Mine	R. F. Landreth & Son	Merceline
Marcelline Coal Co.	Marcelline Coal Co.	
Schaeffer, B.	Bernard Schaeffer	Brookfield
Williamson, L. R.	L. R. Williamson	

LIVINGSTON COUNTY.

Adams, John	John Adams	Chillicothe
Cox's Star Mine	W. L. Cox	"
Eagle Coal Mine	Cox Bros.	"
Tindell, J. W.	Tindell & Co.	Mooreville

LINCOLN COUNTY.

Overton & Wilson	Overton & Wilson	Olney
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MACON COUNTY.

Bevier Black Diamond	Bevier Black Diamond	Bevier
James & Sons	James & Sons	
Kansas & Texas Coal Co.	Kansas & Texas Coal Co.	St. Louis
Murlin Coal Co.	Murlin Coal Co.	Bevier
Northwestern Coal Co.	Northwestern Coal Co.	
Richmond, J. G.	J. G. Richmond	College Mound
Rowland, P. F.	P. F. Rowland	Macon City
The Helmet Mining Co.	The Helmet Mining Co.	Lingo
Thomas Rowland	Thomas R.	Bevier
Watson Coal Co.	Watson Coal Co.	

MONROE COUNTY.

Proprietor.	Operator.	Postoffice address.
C.....	Grier & Pool.	Paris.....
A. J.....	Wm. J. Montgomery	"

MORGAN COUNTY.

Moore.	Hubbard & Moore.....	Versailles
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MONTGOMERY COUNTY.

nond.....	W. A. Lewis	Wellsville.....
ston & Biddleman.....	Wm. Biddleman.....	"

NODAWAY COUNTY.

Wm.....	J. E. Pearson	Quiltman.....
Jos.....	J. S. Davis.....	"
.....	P. R. Halsey.....	"
.....	W. L. Moore.....	"

PUTNAM COUNTY.

Coal Co.	Blackbird C. Co.....	Blackbird.
Coal Co.....	John J. Price & Bro.....	Unionville
Sons, Thomas.....	Thomas Fielding & Sons.....	Pearl City, Iowa.....
ex.....	Alex Guffey	Unionville
C. No. 7.....	Medling & Hewett.....	Mendota.....
Coal & M. Co.....	Mendota C. & M. Co.....	"
s.....	Rogers Bros.....	Pearl City, Iowa.....

RALLS COUNTY.

John.....	John Adkerson	Perry
Bros.....	Fitzpatrick Bros.....	"
ty C. Co.....	Ralls County C. Co.....	"

RANDOLPH COUNTY.

T.....	D. T. Bradley.....	Elliott.....
Wellsby.....	Brown & Wellsby.....	Renick
Stackhouse.....	Cooper & Stackhouse	Moberly.....
l Co.....	Elliott Coal Co.....	Elliott.....
C. Co.....	John Cronan.....	Moberly.....
l Co.....	Higbee Coal Co.....	Higbee
.....	Hunt Bros.....	Huntsville.....
Mining Co.....	Interstate Mining Co.....	Higbee.....
vis.....	Jones & Davis	Moberly.....
ns, J. J.....	J. J. Lewis & Sons.....	Huntsville.....
V. E.....	W. E. Mitchell	"
in.....	John Morris.....	Renick.....
J. F.....	J. F. Robinson.....	Huntsville.....
ry.....	Harry Ward.....	Moberly.....

RAY COUNTY.

Proprietor.	Operator.	Postoffice address.
Blair, Andrew.....	Andrew Blair.....	Richmond.....
Chenault, A. R.....	A. R. Chenault.....	Henry.....
Olimax Coal Mine.....	W. H. Blunt.....	Ovid.....
Daugherty, Sam'l.....	W. O. Ward.....	Richmond.....
Diamond Mine.....	Chas. E. Crispen.....	".....
Duncan, Henry.....	Henry Duncan.....	Lakeview.....
Fowler Coal Co.....	Fowler Coal Co.....	Richmond.....
Hayson, Robt.....	Robt. Hayson.....	".....
Herner, H. W.....	H. W. Herner.....	Hardin.....
Hubbell Lease.....	W. M. Hubbell.....	Richmond.....
Huston, Jos.....	Jos. Huston.....	Lakeview.....
Kansas & Texas Coal Co.....	Kansas & Texas Coal Co.....	St. Louis.....
Kallenberger, J. J.....	J. J. Kallenberger.....	Lakeview.....
King, R. A.....	Jas. Dornh.....	Hardin.....
Loeven, Jos.....	Jos. Loeven.....	Lakeview.....
Marshall Mine.....	Jas. M. Edgar.....	".....
Mercantile Coal Co.....	Mercantile Coal Co.....	St. Joseph.....
Murlin Coal Co.....	Murlin Coal Co.....	Fleming.....
Pence Bros. & Calven.....	Pence Bros. & Calven.....	Richmond.....
Pickering, Jos.....	Pickering Coal Co.....	".....
Rankin Mine.....	A. F. Rankin.....	".....
Ray County Brick, Tile & Coal Co.	W. J. Lynch.....	Lakeview.....
Richmond & Camden Coal Co.....	Richmond & Camden Coal Co.....	Richmond.....
Sevier, Chas.....	Ottman & Swopes.....	".....
The Major Grimes Mine.....	Hugh Blair.....	Knoxville.....
Williams Coal Co.....	R. J. Williams.....	Swanwick.....
Wilson, Mrs. Mary.....	W. Wilson.....	Richmond.....

ST. CLAIR COUNTY.

Allison, R. W.....	R. W. Allison.....	Taberville.....
Griggs, L. L.....	L. L. Griggs.....	Lowry City.....
Hoover Mines.....	Thos. Greathouse.....	Osceola.....
".....	W. A. Seymour.....	".....
Knierim, John.....	Knierim Sons.....	Lowry City.....
Mims, Chas.....	Chas. Mims.....	Iuka Springs.....
Oliver, A.....	Oliver & St. Clair.....	Appleton City.....
Short Estate.....	J. M. Short.....	Iuka Springs.....
Woodson, H. M.....	H. M. Woodson.....	Dottle.....

SALINE COUNTY.

Terrill, H. C.....	Maupin & Fulkerson.....	Elwood.....
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SCHUYLER COUNTY.

Oloakey, R.....	Mock & Watson.....	Zola.....
Golston, Ira.....	Ira Golston.....	Queen City.....

VERNON COUNTY.

Arthur Coal & M. Co.....	Frank Williams.....	Arthur.....
Auger, B. F.....	B. F. Auger.....	Moundville.....
Baker, Frank.....	Frank Baker.....	Sheldon.....
Bedford Coal & M. Co.....	David L. Hughes.....	Panama.....
Bryan, Geo.....	Geo. Bryan.....	Carbon Center.....
Central Coal & Coke Co.....	Central Coal & Coke Co.....	Kansas City.....
Chaney, M.....	M. Chaney.....	".....
Lowe, J. A.....	J. A. Lowe.....	Milo.....
Mayberry, F. M.....	F. M. Mayberry.....	Harwood.....
Rich Hill Coal & M. Co.....	Rich Hill Coal & Mining Co.....	St. Louis.....
Radde, F. M.....	F. M. Radde.....	Harwood.....
Vernon Coal Co.....	Vernon Coal Co.....	Rich Hill.....

Missouri. Mines Bureau.

Annual report 1899/1900, part 13

14TH ANNUAL REPORT

OF THE

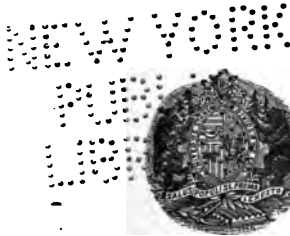
Lead and Zinc Mine Inspector

OF THE

STATE OF MISSOURI

FOR THE

YEAR ENDING JUNE 30, 1900.



JEFFERSON CITY, MO.:

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Easter Star M. Co.	8
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Ground Hog Mining Co.	8
Gumbo Run Mining Co.	8
Haffner & Carl	8
Hagardon & Rose	8
Hagardon, R	8
Hall & Co.	8
Hammond & Co. P. E.	8
Hastings Mining Co.	8
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Hollingsworth & Co.	8
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Houston L. & Z. Co.	8
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Hurd Mine	8
Hutchinson M. Co.	8
Inca Mining Co.	8
Independence Lease	8
Indian River Rye M. Co.	8
Indiana Lease	8
International Zinc Co.	8
Irene "S"	8
Isabella Mining Co.	8
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LETTER OF TRANSMITTAL.

City of Jefferson, October 15, 1900.

Hon. Lon V. Stephens, Governor of Missouri:

Sir—In obedience to the requirement of law, I have the honor to submit the fourteenth annual report of the Inspector of Lead, Zinc and Mines other than coal mines.

Unfortunately this report cannot be printed and distributed until the next Legislature makes an appropriation and the same is approved by our next Governor. The Auditor recommended an appropriation for our printing, based upon the actual cost of the same for the two preceeding years, but the session of 1899, failed to meet this amount.

I desire to call attention to the faithful and able assistance rendered me by our secretary, Mr. J. W. Marsteller, and take pleasure in thus publicly thanking him for his services and loyalty. Permit me to thank you for your kindly consideration of me and your every ready support of the Bureau.

Very respectfully,

GEO. E. QUINBY,
Inspector Lead and Zinc Mines.

INTRODUCTORY.

In presenting this, the 14th, annual report for the fiscal year ending June 30th, 1900, we note a condition radically different from that existing at the close of the last fiscal year and a much healthier condition of affairs in the zinc and lead mining industry although greatly reduced prices from those prevailing last year are being paid for zinc ore as well as for lead ore.

As a matter of fact the mineral industry of the State is in a better condition at the close of the fiscal year than it has been for some time past. Values seem to have adjusted themselves to some extent, the cost of supplies and material of all kinds used in the mines has returned to a normal basis, and the supply of ore produced scarcely meets the demand of the metal manufacturers at the present time, while the indications for a much heavier demand in the near future will stimulate new prospecting and will aid in advancing prices.

During the last few months of the present year, there seemed to be a disposition on the part of a certain element doing business in the Joplin district, especially, to exaggerate conditions, accept fake reports sent out for the purpose of influencing the ore markets and to get hysterical over the general condition of the mineral industry of this section on short provocation. These calamity howls have been raised by thoughtless as well as designing individuals because the fictitious prices of a year ago have not been maintained thereby depriving them of a chance to delude investors into placing money in mines that could not possibly pay dividends unless the price of zinc ore was away above its normal value.

It is unquestionably true that prices are now being paid for zinc ore that at a short time previous to the last fiscal year would have been regarded as little short of marvelous to those engaged in mining, and while it is true that zinc ore is not as high as it was a year ago, it is high enough to leave a good clean margin of profit to those possessing first-class mines which are properly managed and also low enough to enable metal manufacturers to manufacture and sell spelter at a price not in any way prohibitive to galvanizers, brass manufacturers, electrical companies and other large consumers of metal.

There is absolutely no occasion for the fear expressed by the short sighted in some sections that the zinc industry is going to w

the price for zinc ore cannot be forced up to forty or fifty dollars a ton again. A higher price would of course be gladly welcomed by every mine operator in the district and in the State of Missouri, and there is a strong probability that better prices will be obtained the next few months, and that the improvement in the market will be permanent. There are many reasons for this prediction. The spelter production in Europe is not increasing, whereas the demand for metal is increasing very largely every year and the production of zinc ores in Europe is steadily decreasing. This is conclusively proven by the record of exports for this year as compared with last year. In the month of June this year, there were exported 3,556 tons of spelter and for the six months ending June 30th, the shipments were 15,879 tons against 6,336 tons last year, a gain of 149½ per cent. There was also a decided increase in the exports of zinc ore, the shipment abroad for the year being 19,179 tons against 889 last year, a gain of 178½ per cent. It must be understood in making this increased European demand into consideration that this great gain occurred notwithstanding the war in South Africa which entirely cut off the very heavy demand for zinc to be used in the cyanide process for extracting gold and also the usual heavy demand for metal for building purposes in South Africa where it enters very largely into the construction of all buildings particularly in the mining districts.

The increasing use of zinc by the electrical companies and the popularity of electrically propelled automobiles promise a greatly increased demand from this source alone and the fact that the largest smelting concern in the United States is building a rolling mill and zinc shingle factory encourages the belief that a vigorous attempt will now be made to introduce zinc shingles in this country in the near future. The fact that zinc is the only negative metal and absolutely disappears in many of the processes for which it is used should encourage all those engaged in the industry as the supply must constantly be renewed, not being like many of the ores which are converted into metal, practically indestructible and capable of being used over and over again.

Efforts are constantly being made by some of the most eminent chemists in the world to discover a cheap solvent for leaching zinc ore so that the costly processes of smelting will be eliminated and its universal use for the many purposes to which it is best adapted made possible and should a cheap solvent be discovered, which is likely to happen at any time, there would be almost no limit to the demand for zinc ore at prices far in excess of those prevailing at the present time which are very largely dictated by the smelting

interests of the country. Zinc is successfully leached at present by the use of hydrochloric acid, but the process is too costly to be commercially valuable, and, although cheaper solvents have been discovered, none of them are yet available on the score of excessive cost as compared with the ordinary processes of smelting.

It is but natural that smelters should desire to purchase both zinc and lead ores as cheaply as possible, and they are likely to use all possible advantages which they possess to dominate the ore markets as long as they are able to do so and until the producers arrange among themselves and settle on some effective plan to regulate the price of their own product; but natural conditions appear to have benefitted the producer very greatly during the past few months and have forced a suspension of operations at mines producing a low grade of ore at a heavy cost and the output has been so greatly curtailed by the closing down of low grade ore mills that the present supply is hardly equal to the present demands, and would be entirely inadequate for the normal demand when all the smelters of the country are running at their full capacity. There is practically no surplus zinc ore in the districts, and there is not likely to be under present conditions.

Another encouraging feature at the present time is the departure from the districts of a large number of unscrupulous promoters who infested them last year to the detriment of the industry and everybody connected with it in a legitimate way. A majority of these sharks knew nothing about mining and cared less. They were simply birds of passage who came into the districts with the one object of making as much money as possible regardless of who suffered from their methods, and this department has been overwhelmed with letters from victims of their unscrupulous methods. The courts of the country are now dealing with several swindlers of this type and the normal condition to which the mining districts have returned fortunately make it impossible for them longer to practice on the gullibility of the public. Mining brokers who are doing a legitimate business and have first-class connections are making no complaint about conditions, and, on the contrary, state that shrewd capitalists who held aloof from the districts during the time of inflated values last year are now coming with fixed purpose of investment and that they have constant inquiries for fees and good developed properties at reasonable prices from parties who desire to engage in actual and legitimate mining operations in place of stock jobbing transactions, and there has not been a time in several years when as much local capital has been invested in mining operations as during the last six months. Men who have made money in

past in the mineral districts are putting their money back into other mining enterprises in these districts, and, experienced as they are, it must be accepted as a fact that they are not doing it unless they have unlimited faith in the mining districts and their possibilities.

Some of the large companies who entered the southwest districts and who started in to work their own ground have revised their methods of operation and are subleasing all their holdings to old and experienced local operators who have an unbroken record of successes and will in the future rely upon the royalties received for a profit on their investments, leaving to the actual operators all the risks of actual mining operations and insuring to their stockholders steady dividends from every pound of ore produced. The record of carefully conducted companies and the large profits made by individual operators stamp it as a truth beyond question that in this broad country there is no field for legitimate investment that offers the opportunities and insures the great returns that the zinc and lead fields of Missouri offer to the careful investor and there can be scarcely a doubt that investments so made within the next few months will double and triple in value in a comparatively short term of years.

The tendency toward deep drilling inaugurated last year by the publication of the "Crossman Drill Chart," is still observed and the result has been the development of deeper runs of ore in greater quantities than formerly. Continual experiments have been carried on by operators possessing ample capital to develop more effective machinery for cleaning zinc ore, but except in sludge mill machinery there has been no great advance or any material change in the machinery in use a year ago. A better system has been inaugurated in the mills erected and operated by outside capital and solidity of construction with larger and heavier machinery, is characteristic of most of the new mills erected during the past year. Probably the greatest advance has been made in the pumping systems in use, which are generally much heavier and more effective than those in use a few years ago, but in the main, the concentrating mills which were devised by the old-time practical operators, have been found to be more effective than some of the improvements inaugurated by late comers, and some of the large companies have gone back to older methods after wasting a large amount of money in experimenting. During the past year a number of comparatively new camps have added greatly to the State's production, and this is particularly true of Neck City. Alba and Carthage, in Jasper county, while Aurora, Lawrence county, has come to the front very rapidly owing to deeper prospecting and the consequent discovery of large bodies of ore at

lower levels than formerly worked. Ozark and Springfield, Missouri, are coming into prominence as producers of high grade ore, and numerous other camps show the effects of intelligent work under the improved methods inaugurated during the past year. A noticeable feature this year is the entire lack of anything like a large surplus of ore which in previous years has been a menace to the stability of the ore market and has enabled ore buyers to practically place any value they chose upon ore, feeling sure that sooner or later operators would be forced to accept any price offered owing to inability to hold their production. The concentration of the mining business in fewer hands and the almost universal substitution of steam machinery for hand cleaning methods of operation have made concerted action possible, and whenever a radical cut in the price of ore is attempted, the immediate consequence is a curtailment of the production to a point barely sufficient for the immediate pressing needs of the smelters with the result that any unusual demand is immediately followed by a demand for a higher price which the ore buyers are forced to concede if they obtain what ore they need. The result is that during the past few months, the price for ore has not been subject to the sudden and arbitrary fluctuations noted in years past. It is reported that the producers of ore assaying 60 per cent. and over have entered into an agreement among themselves to hold their ore when prices go below what they think is justified by the market conditions, and this is probably true to some extent as there is a marked uniformity in the price of the ore produced in the camps where the high grade is similar.

Another practice which is becoming almost universal is the purchase of zinc ore on assay, three assays being made of the ore after it is loaded on the cars and an average of the three assays being taken to determine the price. This method has proven very satisfactory alike to the buyer and seller, and will, without much doubt, be adopted in the near future at every camp of the zinc districts.

So much outside capital is now invested in the mining districts of the State and such a constant and systematic attempt is being made to lower the cost of production, and to devise and maintain an equitable system for the sale of ore that it is unlikely that the mining districts of the State will ever again experience the fluctuations in prices that prevailed during 1893 and 1894, when a vast amount of ore was sold at barely the cost of production, and in many cases at probably less than cost to enable small operators to pay their employees. In conclusion we must say that from present indications, the future of the zinc and lead mining industry of Missouri seems to be brighter than at any period of the past.

RÉPORT.

As will be observed from the following table, lead ore and the good average price it has maintained throughout the year, together with its increased production, has saved us from falling behind in the receipts derived from the sale of lead and zinc as compared with the previous year. Zinc ore within the period covered by our fiscal year declined in price from an average of \$44.20 per ton for the month of July, 1899, to \$27.80 per ton for the month of June, 1900. This drop in the price of zinc ore, it was feared would so discourage its production as to cause a large decrease in the output and that we would be compelled to record a great falling off in our zinc product; this fear has been happily dissipated by the final results of the year—which show an increased production of 4,866 tons of zinc—though the price so reduced the receipts from the sale of the ore as to cause a decrease of \$262,993 as compared with its value for the year before. Lead ore, however, with its increased output and price, shows an increased valuation amounting to \$579,965, which sum not only covers the zinc shortage, but advances the value of the two ores \$316.972 in excess of the previous year.

The total production of zinc ore for the fiscal year amounted to 86,296 tons, as against 181,430 tons for the former year; the zinc product sold for \$5,711,631 as against \$5,974,624 for the year before. Lead ore shows a product for the year amounting to 80,478 tons, as against 70,829, the value of the ore for this year reached a total of \$3,726,202, compared with \$3,146,237 for the previous year. The total value of the two ores amounts to \$9,437,833, or \$316.972 in excess of the year of greatest production. Zinc ore is seldom if ever reported by the mining journals under the head of zinc ore product; but as metallic zinc or spelter—zinc oxides, etc. For the benefit of those wishing to make comparisons, we reduce our zinc ore to the refined state, this we arrive at by allowing 3680 pounds of high grade zinc ore to 2,000 pounds of spelter and for our low grade zinc ore (silicate) we allow 2.44 tons to a ton of spelter; taking the above

method for arriving at the spelter product of the state for our last fiscal year, we find that we have produced what would be equivalent to 99,327 tons of spelter. This product equals the entire spelter production of the United States for the year 1897. It should be remembered, however, in this connection, that the zinc ores are not all converted into spelter, as there are other products derived from the ore which draw heavily upon the output.

There are at present 106,339 acres of mineral lands controlled by our operators in fee or lease, on which are distributed 1,103 shafts, large and small. There were in use on these lands during the year, 327 concentrating plants, 384 hand jig plants, 906 steam boilers, 620 steam pumps, 75 air compressors, 715 steam hoisters 521 horse hoisters, 380 crushers, 597 steam jigs and 382 hand jigs. In this list of plants, many of them excel in their capacity and equipment, while many are indifferent and others very crude.

So much has been said and written concerning Southwest Missouri, relative to its great mineral area, its wonderful production and of the large investments made in that section, that other sections of the State have been comparatively lost sight of; but the rapid and extensive developments now at work in Southeast Missouri, cannot much longer prevent its great importance from being widely known. Argus-eyed capital has discovered its treasures and millions of dollars have been invested in that section within the last year, and it requires capital in large chunks to mine in that section; therein lies the great difference between the two sections, for in Southwest Missouri, men of limited means may profitably engage in mining, but in the Southeast the conditions are exactly reversed, as only those commanding large sums of money can hope to open and equip a mine and compete with the very extensive plants already in operation there.

In St. Francois, Madison and Washington counties, where the immense bodies of the disseminated lead ore have been developed, many new and very extensive plants are in process of construction. One new plant has just been completed, which aside from the cost of the land, has cost over one million dollars to construct it, and it is without question the finest, largest and most complete plant of the kind to be found in the world. Every part of this mine and plant requiring power, has it furnished by an electric plant excelled nowhere in this country. One of the above counties (Madison) has the distinction of producing more nickel than is produced in all other states of this country.

Within the last two years \$19,000,000, have been invested in this

te, in the purchase of lands, plants and in the erection of new
orks and with the many new and extensive plants and new mines
ened, together with the added facilities for doing business and
e extra fine prospect for a large foreign demand for our ores, we
ill be greatly disappointed if our output for the current year is
ot immensely increased.

There are 1103 shafts in operation in our lead and zinc fields.
o one man can give them the attention they demand, and I have
een compelled to call on our secretary to assist at times; but his
uties will not permit the time required in the field. I would re-
spectfully recommend that an additional inspector be provided for,
o that the Southwest and Southeast may each have an inspector.

TABLE 1—LEAD AND ZINC.

Comparative table for the years 1899 and 1900 (fiscal year.)

	1899.	1900,	Increase.	Decrease.
Counties producing lead and zinc ore.....	15	21	6	
No. shafts operated during the year.....	1,110,001	1,103	102	
No. tons lead ore mined during the year.....	70,829	80,478	9,649	
No. tons zinc ore mined during the year.....	181,430	186,296	4,866	
Amount received for lead ore product.....	\$3,146,237	\$3,726,202	\$579,965	
Amount received for zinc ore product.....	5,974,624	5,711,631	.....	\$262,993
Total receipts from out-put both ores.....	\$9,120,861	\$9,437,833	\$316,972	
Average price received per ton lead ore of all grades.....	\$44.40	\$46.30	\$1.90	
Average price received per ton zinc ore of all grades.....	34.33	30.65	.....	\$3.68
Total number miners employed.....	6,002	6,688	686	
Total number mill men and other help.....	3,617	3,282	.....	335
Total number of men prospecting.....	1,378	1,613	235	
Total number of all employes.....	10,997	11,583	386	
Total number of employes fatally injured....	27	52	25	
Total No. of employes non-fatally injured....	19	27	8	

The lead ores of Southeast Missouri are less valuable than those
the Southwest, and the above average does not do justice to the
alue of the lead product of the last named section of the State, as
ay be seen from the following:

Jasper county lead ore, first grade averaged \$51.86 per ton.

Jasper county dry-bone averaged \$25.11 per ton.

The average for both grades was \$51.60 per ton.

Jasper county zinc ore, best grade, averaged \$31.54 per ton.

Jasper county silicates averaged \$14.23 per ton.

The average for both grades was \$31.27 per ton.

JASPER COUNTY.

THE MISSOURI LEAD & ZINC COMPANY.

The Missouri Lead & Zinc Co. owns 1,200 acres of mineral land situated and adjoining the southeastern limits of Joplin and operates on the leasing system; parcels of ground are leased to miners at a royalty of 20 per cent. on zinc and 25 per cent. on lead ores. About one hundred leases are being operated on this land, some forty of which are producing and the remainder sinking shafts for prospecting purposes. The company operates for the benefit of the lessees, a custom mill, also seven pumps distributed over the land which drains the same where worked to about 100 to 180 feet depth. In addition to the mill operated by the company, three lessees each operate a mill and two additional mills are cleaning ore from old hand jig tailings, a vast quantity of which have accumulated during the past thirty years. The company operates an electric power house, furnishing power for its own mill, for one mill on a lease, for ventilating fans at several mines, for lighting buildings, and is changing its pumps to be operated by electric motors. This land is exceptionally convenient to Joplin, a large portion being in the city limits with good roads and one corner of the land being but three blocks from the court house on Seventh street. This advantage, together with the fact that there are about three miles of water mains laid by the company, giving city water for boiler purposes, switching facilities from railroads, an ample supply of surface water for cleaning purposes, that the ground is largely drained and its cheap milling makes this one of the most satisfactory pieces of property in the district for prospectors and miners. The weekly production of the land now reaches about 80,000 pounds of lead and about 200,000 pounds of zinc ore. The entire management of this property is in the hands of H. R. Conklin of Joplin.

CONTINENTAL ZINC, LEAD MINING & SMELTING CO.

The Continental Zinc, Lead Mining & Smelting Co. is incorporated under the laws of Mass. and capitalized at \$1,500,000, with Ernest Thalman of Boston, Mass., president, Ed. H. Moore, secretary, Charles Haden, treasurer and A. O. Nichols of Joplin, general manager. The company has recently acquired the fee of 240 acres situated just to

the west of Joplin and known as the Kohinoor tract. This tract of mineral land is one of the foremost producers of mineral now being operated in the Joplin district. This company does principally a leasing business, charging the operators 15 per cent., which is considered a reasonable royalty where land is so well developed. There are 23 producing shafts on this tract sunk to an average depth of 170 feet, while the further improvements consist of 12 complete concentrating mills, 22 boilers, 14 pumps, 25 steam hoisters, 14 crushers, 25 steam jigs, 2 hand jig plants, with 4 hand jigs and 7 horse hoisters. There were 3,000 feet of drilling done on the land during the past year. The land is credited with having produced during the past fiscal year 5,040 tons of zinc ore and 59,200 pounds of lead which sold for \$166,495.77. The operators on the Continental are as follows: Glendale Mining Co., Clover Leaf Mining Co., W. C. Renfrow, Sheldon Mining Co., Jack Havard Mining Co., H. A. Foster, Piasa Mining Co., McGuin & Co., Detroit Mining Co., Big Six Mining Co., Tomahawk Mining Co., Pearl Lead & Zinc Co., Van Dalia Mining Co., Mary D. Mining Co., Ground, Irwin & Co., Hews, Miller & Co., Dead Mule Mining Co., Lawrence-Joplin Lead & Zinc Co., Kohinoor Zinc Co., Gofer & Co., M. H. Lyon, Fourteen Mining Co., Bristol-Joplin Lead & Zinc Co., Live Mule Mining Co., Young & Co., Crane & Co., Hennesy, Lynch & Co. and Manning & Co.

LEE MOORE LEASE.

The operators of this lease are Lee Moore, T. F. Phelps and others of Joplin, Mo. They control a first lease on 80 acres of mineral land situated about one mile south of Joplin and which is owned in fee-simple by Scott & Carter. There are fifteen shafts sunk ranging from 20 to 120 feet in depth with ore developed in four of them in both open and hard ground, and some timbering being necessary for the support of the drifts in the ground that is open. The land is new in point of mineral developments and so far, zinc is the only ore produced. The improvements on the lease consist of one complete concentrating mill, two steam pumps, four steam hoists and two hand jig plants. Lee Moore of Joplin, Mo., is manager.

INDIANA LEASE.

This lease comprises forty acres just to the south of Joplin at a royalty of ten per cen. and is the property of J. W. Gross of Joplin, Mo. The principal operator on the lease is the Georgia B. Mining Co., which is composed of Geo. W. Belk and others of Joplin. They con-

trol six lots of the Indiana and have one shaft to a depth of 142 feet with a very large and apparently rich body of zinc ore developed. This company has a mill of about 75 tons daily capacity in operation and produce about 25 tons of zinc ore per week. The ore occurs in open ground that requires some timbering for the support of the drifts. This company pays a royalty of 20 per cent. to the Indiana company.

SPRING RIVER MINING COMPANY.

The Spring River Mining Co. is operating on 25 acres of mineral land situated about one mile southwest of Alba and pay a royalty of 8 per cent on one-half of the lease and 10 per cent. on the other half. The land is owned in fee-simple by Daniel Fox and W. Honey of Alba, Mo. There are six shafts sunk on the leases ranging in depth from about 180 to about 210 feet, in which zinc ore has been developed. The ore occurs usually in medium ground that requires some timbering for the support of the drifts. There are four complete concentrating mills on the lease equipped with the necessary machinery and appliances for handling the ore.

SPRINGER-PAGE MINING COMPANY.

This company is composed of Warren Springer of Chicago and F. J. Page. They operate 80 acres of mineral land situated near Zincite and do a leasing business only. There is one concentrating mill on the land (which was erected during the past year) and four jig plants, with four shafts reported sunk to an average depth of 75 feet, in which ore has been developed. The operators on the land are the South St. Louis Mining Co., Olympia Mining Co. and the Jack Knife Mining Co. Their reported production for the past fiscal year was 1,500 tons of zinc ore which sold for \$45,000.

The International Zinc Company (Limited).

This company is composed principally of eastern gentlemen and is incorporated under the laws of West Va. for \$1,000,000.00, with W. C. Johnson president and Hugh McIndoe of Joplin, Mo., secretary. During the past year this company purchased the fee and lease known as the Free Coinage, containing 110 acres and situate about three miles northeast of Joplin. There are two concentrating mills on the land, one of which is used as a custom mill, while the other is used to clean the ore from "Big Dick" shafts. There are a large number of shafts on the land that have developed zinc ore, ranging in depth

from 115 to 140 feet. This is an excellent tract of mineral land and large bodies of zinc ore are known to exist, but the ground has not been sufficiently drained for the past few months to allow many of the shafts to be operated. In our opinion only the proper drainage is necessary for heavy turn-ins to be made from this land. This company also owns a lease on 25 acres in the southern limits of Carterville on which there are two modern and complete concentrating mills in operation. The company pays a royalty here of 15 per cent. on zinc and 25 per cent. on lead ore mined and make large productions of both ores. There are about 12 shafts sunk on the lease and the ore is encountered at about the 165-foot level in sheet ground which requires a steam or air drill for successful breaking, an air drill being used here. The company recently purchased the lease of S. C. Edgar of St. Louis and immediately erected one additional 100-ton concentrating plant. Heavy producing mines are located on lands immediately adjoining this lease on the west and south.

South Free Coinage.

The South Free Coinage lease contains 74 acres and is situated about two miles to the east of Joplin and is crossed by the Mo. Pacific and Memphis railroads. Very little mining has been done on this land during the past year, but the new company which recently purchased the lease of the Free Coinage Co. expect to give better drainage to the operators which will allow the mines to be worked. There are a number of shafts that have developed the ore at about the 90-foot level, and the production will doubtless be good once the ground is properly drained. There is one complete concentrating mill on the lease recently erected which will soon be put in operation. There are also a number of prospectors on the lease.

T. C. Clay & Co.

The "Clary" is composed of Senator Lucian Baker of Kansas, S. W. Snyder of Leavenworth, Kansas, and T. C. Clary of Joplin, Mo., who is general manager of the mines. The company operates three lots of the McGibben land which is situated about two miles east of Joplin and have two shafts sunk to the depth of 115 feet, at which level a very excellent body of zinc ore has been developed in open ground. This ground is very rich in mineral and heavy productions have been made with only the hand jigs in use. A new steam concentrating plant is being erected that is supplied with all the necessary machinery and appliances for the successful treatment of the ore.

Rudolph Fincke & Co.

This company is also operating on the McGibben land and has one shaft down to the depth of about 100 feet, at which level a very extensive body of zinc ore has been opened. This deposit of ore became so rich that the hand jigs were soon discarded and the erection of a concentrating plant begun. This plant is now nearly completed and will soon be put into active operation.

COLUMBUS MINING CO.

This company is the owner of the first lease on fifteen acres of mineral land belonging to the John Jackson estate and is composed of Isaac Wright of Columbus, Kansas, and C. F. Spencer of Joplin, Mo., the mines being under the management of Mr. Spencer. The company pays a royalty of 10 per cent. to the John Jackson estate and charge operators 20 per cent. The drifts are cut about 20 feet wide in reasonably hard ground, which is said to run about 8 per cent. zinc ore. The improvements consist of a complete concentrating mill erected at a cost of about \$4,000, equipped with the regular machinery and appliances for cleaning the ore ready for the market. There are two steam pumps and one centrifugal pump in operation. The company has an office and scales on the ground where the ore is weighed. In addition to the above improvements, this company, in connection with the Jackson Hollow Mining Co., which is a sub-lessee, have a pumping station erected at Shoal creek with 4,200 feet of four-inch pipe laid, through which water is forced for general milling purposes.

The Jackson Mining Co.

The "Jackson Hollow" company is incorporated under the laws of Iowa and capitalized at \$50,000, with H. Hepburn of Davenport, Iowa, president, J. B. Carmichael of Omaha, Nebraska, vice-president, and E. L. Hayward of Joplin, Mo., secretary and manager. Their lease covers four lots of the Columbus lease at 20 per cent. royalty and 20 acres of mineral land belonging to the John Jackson estate at 10 per cent. royalty. The two leases adjoin and are situated about five miles to the southwest of Joplin. The company has one shaft sunk on the four lots of the Columbus ground and has a large face of zinc ore developed at about the 70-foot level, and a very complete and modern plant erected on the lots. The mill is lighted by electricity and is supplied with sufficient boiler power, jig, rolls, crushers,

hoisters, elevators, etc., for successfully treating the ore. The ore occurs in medium hard ground and is easily broken and after being hoisted is carried from the shaft to the mill in dump cars holding a ton of dirt by means of gravity thus dispensing with the tub rustler. In addition to these improvements, this company joined with the Columbus company in the erection of a pump station on Shoal creek and laid over 4,000 feet of four-inch pipe, through which water is forced for the general use of the mill. On the 20-acre lease belonging to this company is one shaft in which zinc ore in paying quantities has been developed.

KANSAS CITY MINING & MILLING CO.

The "Kansas City" company is operating a lease on forty-five acres of the John Jackson estate about five miles to the southwest of Joplin and is composed of E. D. Nix of Joplin, Mo., and Mr. Wiles of Kansas City, Mo. A royalty of 10 per cent. is paid by the company to the Jackson estate on all minerals mined. There are a number of shafts sunk on the lease at various depths, but the principal deposits of ore now worked are at about the 95-foot level. The ore occurs in both open and soft ground at about the same level and has been worked with but little intermission for the past year, establishing its solidity among the old producers of the district. The company employs about 18 men and makes regular weekly productions which are very satisfactory. There is a complete concentrating mill in operation with sufficient steam power, crusher, rolls, jigs, screens, elevators, etc., for successfully handling the ore. The water for milling purposes is furnished from an 8-inch lift pump, which is also used for draining purposes. The mines are under the management of J. A. Brookshire of Blendville, Mo.

THE BINGHAMTON ZINC & LEAD MINING CO.

The "Binghamton" is composed of gentlemen from Binghamton, N. Y., and represented by M. A. and Chas. S. Miller, who recently purchased the fee to 20 acres known as the McCarty land about two miles east of Joplin, and the first lease thereon, which was owned by Bailey & Stickney of Carthage, Mo. There are four shafts on the property that have developed zinc ore and a most excellent new strike of zinc ore was recently made. The ore occurs mostly in soft ground at about the 90-foot level, this being about the same level of other good mines developed immediately adjoining on the south and west. *The land as a whole lies well for mineral and will doubtless prove*

a very profitable investment for the company. The following operators are on the Binghampton purchase.

SLOCUM & CO.

This company is composed of W. W. Slocum, C. S. Yeaton and A. S. Burnette. They have recently purchased the lease covering nine lots of ground owned by the Binghampton Zinc & Lead Company, on which there are four shafts sunk ranging in depth from 90 to 100 feet and in each of which zinc ore has been developed. The company has just completed a new concentrating plant of 100 tons daily capacity at a cost of about \$10,000. The mill is supplied with sufficient steam power, pumps and all the necessary machinery for a modern mill.

BRUCE MINING COMPANY.

This company is composed of gentlemen from Bruce, Kansas, who purchased during the past year 43 acres in fee-simple and the lease, including mill thereon, of the St. Joseph Land & Mining Co. and the Pearl C. Mining Co. Four shafts sunk on the land ranging in depth from 115 to 142 feet developed zinc ore and have produced in about five years over 14,000,000 pounds. The ore has been encountered in extensive bodies in soft ground, which requires heavy timbers for the support of the drifts. The drifts are cut usually about 10 feet wide and about 12 feet high. The mines are situated about midway between Joplin and Webb City, being about three miles from each city and have the advantage of the Missouri Pacific and Memphis railroads for transportation, as these two lines pass over the property. There are good zinc developments immediately west and south of this property. The concentrating mill in operation on the property is of about 75 tons daily capacity and is in fair condition for milling the ore.

FRED BASOM LEASE.

This lease is the property of Fred Basom of Joplin, Mo., and covers 40 acres of mineral land situated about two miles east of the city of Joplin. The lease is held at the extremely low royalty of 5 per cent. and if it were properly developed it would doubtless prove a very profitable tract of mineral land. There are five shafts sunk on the lease, ranging in depth from 128 to 160 feet, with lead and zinc ore encountered in each shaft. The ore occurs in open ground and the drifts require timbers for their support when the ore is mined at the present working levels, which are 100 feet below the surface, but the ore is reported to continue to the depth of 150 feet.

The developments are comparatively new, but sufficient to warrant the belief that a great deal of profitable mining can be had on the land. The improvements consist of a complete 75-ton concentrating mill supplied with the necessary steam power, machinery and appliances for successfully treating the ore.

THE ISABELLA MINING COMPANY.

This company is composed of Senator F. W. Mott, August Gehner and Wm. F. Nolker of St. Louis, Mo. They own in fee-simple 360 acres of mineral land situated about four miles to the east of Joplin and about one mile to the northwest of Duenweg, a camp that has become famous for its production of lead and zinc ores. From twelve to fifteen years ago considerable shallow mining was done on the land with fair results at about the depth of 40 feet, but no mining of late years has been done until within the past year, when a company was organized under the name of Webster-Mott Mining Company, which is composed of Senator Mott of St. Louis and W. H. Phelps of Carthage, Mo., and others, with Fred Mott, whose headquarters are at Joplin, as general manager. This company owns a lease at a royalty of 10 per cent. on 40 acres of the "Isabella" land and has one shaft down to the depth of 120 feet, in which zinc ore was encountered at the depth of 94 feet and continued to the bottom of the shaft, but drifting was begun at the 95-foot level. A very considerable amount of zinc ore was cleaned up while the sinking was in progress, as the ore is free and could be cleaned over hand jigs. The prospects for a mine here are very flattering and as soon as the ground is sufficiently opened to warrant the expenditure, a complete concentrating mill will be erected. The present improvements consist of one 8-inch lift pump with which the ground is drained, a Sampson steam hoister, a Ran steam drill and three hand jigs.

PORTO RICO.

"Porto Rico" is the name given a new mining camp being opened up and is situated two miles north of Duenweg, being about midway between the Duenweg and Prosperity camps. The land on which the "Porto Rico" mines are located belongs to Frank Porter of Carthage, Mo., and comprises 120 acres. He leases the land in blocks of $6\frac{2}{3}$ acres at from $17\frac{1}{2}$ to $22\frac{1}{2}$ per cent royalty, and there are some very fine bodies of zinc and lead ore being developed. The foremost company operating on this land at the present time is known as the "Lucky Tom" and is composed of Jas. A. Johnson of Porto Rico and D. M. and Frank Stafford, R. H. Park, F. D. Porter, Ben Kean, Dr. Wise,

Jean Bennett, Tom Pear and Miss Eva Wadkins of Carthage, Mo. They operate 6½ acres at a royalty of 20 per cent. and have two shafts sunk to the depth of 128 and 132 feet, respectively, with lead and zinc ore developed in each. The ore is being mined at the 123-foot level and is proving to be one of the richest in point of production of both lead and zinc ore to be found in that section of the district. The ore occurs mostly in open ground and some timbering is necessary to hold the drifts. The company has erected a complete concentrating plant supplied with all the necessary machinery and appliances for successfully handling the ore. There are two large lift pumps and one 5-inch steam pump in operation with which the ground is drained and water furnished for general milling purposes. There are other companies operating on the Porter land that have developed the ore, but the "Lucky Tom" is the only one yet producing.

COLORADO-JOPLIN MINING COMPANY.

This company is incorporated under the laws of Colorado and capitalized at \$1,250,000, with J. R. McKinney president, L. L. Aitkins of Colorado Springs, Colo., secretary, and T. M. Howell, now of Joplin, Mo., general manager. In addition to lead and zinc lands recently purchased in Missouri, the company owns mineral properties in Colorado. This company has recently purchased the fee of 80 acres of mineral land known as the "Idaho," situated about three miles north of Joplin in the "Tuckahoe" district and on which there are seven shafts sunk, ranging in depth from 105 to 154 feet that are producing ore. The mining is done above the 80-foot level at the present time in soft ground which requires heavy timbers for the support of the drifts. Both lead and zinc ores are produced in large quantities and the ore is so free that the use of a crusher is dispensed with and hand jigs only are used for cleaning purposes, and there are 20 of these in use on the land. There are four steam and three horse hoisters in use on the land, while there are two steam pumps and one 12-inch lift pump in operation with which the ground is drained and water furnished for cleaning purposes. The company does principally a leasing business and there are six lessees on the land who have from two to eight lots each and there are from 45 to 50 men employed in and about the mines. The lessees pay a royalty of 20 per cent. on zinc and 25 per cent. on lead ore mined. The land adjoins the "Becky Sharp" on the east and is an excellent tract of mineral ground. This is *purely a western company* and it has purchased the land for a *permanent mining business*.

UNITED ZINC COMPANIES.

The United Zinc Companies is a corporation organized under the laws of New Jersey with an authorized capitalization of \$6,000,000; \$1,000,000.00 preferred and \$5,000,000.00 common stock. The stock is practically all held in Boston, Frederick R. Tibbitts, banker, of 22 Ames building, that city, having been the promotor. Three hundred and seventy-five thousand dollars of the preferred stock has been issued in buying the company's property in this district. William L. Lowell is president, George M. Foster, treasurer; James L. Clark, secretary and counsel, and Franklin Playter, general manager. Geo. H. Playter is the company's superintendent at Joplin and C. C. Playter at Aurora.

Besides the property described below the companies own an 83-acre tract at Aurora, Lawrence county, formerly belonging to the Rinker Land and Zinc company.

In Jasper county its property consists of the 80 acres formerly belonging to the Chitwood Hollow Mining Land Company, described as follows: The east one-half (1-2) of the southeast quarter (1-4) of section 32, township 28, range 33; a 40-acre tract about one and one-half miles east of Joplin, described as follows: all that part of the north one-half (1-2) of the northeast quarter (1-4) of section 12, township 27, range 33, lying north and west of the right of way of the Missouri Pacific railroad; and joining this on the west a ten year, 10 per cent. lease on 40 acres owned in fee simple by W. S. Paul.

The policy of the company is to lease its ground to miners rather than operate; it has 24 lessees now operating on the property besides three (3) mines and mills owned and operated by the company. There are five (5) mills on the property, all of them of first-class construction and equipment, while in addition to those already in operation there are several more in course of construction. The King Jack, one of the mines on the company's land, with only three hand-jigs in use, produces weekly as much as the average mill in the district.

The land of this company east of Joplin was mined largely several years ago, but is not producing anything like its old-time record at present. A great deal of development is going on on the property, shafts being sunk and prospects opening up so that it presages a renewal of its old time production.

The "Chitwood" property, however, has developed more rapidly *and with greater wealth than almost any similar tract of land in Jas-*

per county within the last year. Two new mills have been built and four new mines opened up. This 80 acres alone has produced 7,634,641 pounds of zinc and 846,300 pounds of lead, selling for \$152,326.92. Out of the 34 drill-holes that have been sunk on the property within the last twelve months over 50 per cent. have found good prospects, and two of them, especially, have proved to be among the richest mines ever found in this district; namely, the King Jack and the Great Scott.

This 80 acres had its first turn on September 14th, 1895, and up to June 30th, 1900, less than five years, have produced as is shown by the following table:

Date.	Zinc, lbs.	Lead, lbs.	Value.	Royalty.	Selling price, per ton.	
					Zinc.	Lead.
Sept. 14, '95, to Dec. 31, '95.....	101,240	7,950	\$1,280 49	\$127 94	\$22 00	\$35 00
Jan. 1, '96, to Dec. 31, '96.....	1,832,010	739,060	30,197 31	3,993 25	21 50	30 00
Jan. 1, '97, to Dec. 31, '97.....	3,880,882	1,700,475	76,910 70	13,017 92	21 50	40 00
Jan. 1, '98, to Dec. 31, '98... ..	3,144,247	530,600	54,770 27	9,472 32	27 25	44 50
Jan. 1, '99, to Dec. 31, '99.....	5,022,245	504,010	128,863 93	18,643 97	41 25	52 00
Jan. 1, 1900, to June 30, 1900....	4,646,586	652,870	87,737 87	16,720 06	30 00	53 50
Totals.	19,227,210	4,134,935	\$379,760 57	\$61,975 46	.....	.....

The ore produced is high grade. Picked samples from the Conqueror and King Jack having shown as high as 65 and 66 per cent. metallic zinc, while two car loads recently shipped from the Pelican assayed over 64 per cent.

During the last year the Memphis Railroad Company has built switches to nearly every coal bin on the ground. The City Water Woks have extended their mains to most of the plants.

In continuing the work of development started with so many favorable drill holes 13 shafts have been sunk, varying in depth from 50 to 160 feet. All these shafts have been equipped with good derricks, hoisters, boilers and pumps; so arranged that they will be available at once when property is ready for a mill. At the older plants four 100-horse power boilers have been installed during the year and in every department of the work large improvements is to be seen.

Below is a detailed report of some of the more important leases and mines.

King Jack.

The King Jack consists of two 4-lot leases, belonging to Bud M. Robinson and associates of Chicago. The mine was located by drill

ing in April, 1899, ore being found at 80 feet down to 117, where the drill stopped in ore. A shaft was immediately sunk and the first turn in was made January 6th, 1900. On June 30th, their turn ins had amounted to over a million pounds of ore for which they received over \$16,000.00. This was free ore cleaned on three hand jigs, while their crush pile will yield at least 400 tons of jack. Some of the dirt for weeks at a time will run as high as 50 to 60 per cent. All of this ore has been turned in from the 110-foot level, being taken from what are practically prospect drifts cut from 10 to 12 feet wide and from 12 to 14 feet high. The shaft is 22 feet deeper and there is richer ore in the shaft than has yet been cut in these drifts. The drifts cut have been in soft ground, following an old water-course, leaving very good faces of hard ground ore along the walls. At one point there is a very rich face of hard ground ore 125 feet long from 12 to 16 feet high on the 110-foot level. Along this wall they have prospected the bottom for from 8 to 10 feet deeper and find as rich ground below as any they have had above. They estimate that they have enough ore blocked out through the sinking of their shaft and the prospecting in bottom of the drifts to run a hundred-ton mill for considerably over a year. A mill will be built in the immediate future. The King Jack ore assays from 63 to 65 per cent. In addition to the main shaft and mine a second shaft is down to a depth of 110 feet, on the north side of the lease showing good ore.

The Conqueror.

This mine is owned by Wm. Houk of Joplin, Missouri; John D. Gougar of Lafayette, Ind., and G. W. Houk of Farmersville, Ohio. W. A. Ryno is superintendent. Their property consists of three 4-lot leases in the southwest corner of the "Chitwood 80." The mill started in March, 1899, and 3,999,510 pounds of jack and 225,260 pounds of lead was mined and sold for \$80,339.46, paying the United Zinc Companies \$16,066.92 royalties prior to June 1st, 1899. They had on June 30th over 200 tons of ore unsold in their bins, which they were holding for a \$30.00 price. This record speaks for itself. The mill shaft is 155 feet deep with a 10-foot sump. No. 2 shaft is 120 and No. 3 is 123 feet deep. The mill shaft and No. 3 have been cut together, giving good ventilation. Good ore bodies have been exposed in all these shafts, only a small part of them being necessary to keep mill busy; one face in the mill shaft being at least 80 feet high with good ore in the bottom of the drift. In nine drill holes sunk before starting to develop property, seven showed good prospects. These drill holes show ore considerably deeper than has been mined at all as yet. A

recent drill hole to the east of No. 3 shaft showed ore down to 170 feet, 25 feet below the deepest working that is now being done. They estimate ore enough in one stope to be taken up between Nos. 1 and 3 shafts to run their mill double shift for a year without calling on three or four other good big faces of rich ore. The mill handles about 125 tons of dirt per shift; the ore assays from 61 to 62 1-2 per cent. zinc.

Surface equipment is of the best. One double Freeman hoister, one Samson and one single Freeman hoister, 200-horse power battery of boilers, 40-horse engine, 15-inch crusher and large roll capacity. The mill is modern and very complete in all its appointments.

Pelican.

The Pelican is owned and operated by the United Zinc Companies. The mill is of 125-ton capacity, thoroughly equipped, 200-horse power boilers, 14-inch crusher, large roll capacity, Faust jigs. There are two shafts, one 157 the other 151 feet deep; differing from all other properties in Chitwood Hollow except the King Jack, the Pelican is a soft ground mine and requires timbering. The ore is found free in a gray spar ground. Most of the ore at present is coming from No. 2 shaft, where at the third level at 151 feet there is a phenomenal rich body of ore. No sides or bottom have been found in cutting from 50 to 75 feet in every direction from the shaft; all of the faces being carried about thirty feet high. A solid body of ore has been developed between No. 1 and No. 2 shaft, which they estimate will run the mill double shift for 18 months. Mill assays have run as high as 64 per cent. showing a wonderfully rich grade of ore, as well as large quantities of it in the ground. Some of the heaviest timbers used at present in this district are being put in this mine. Thirty-foot posts from 16 to 20 inches in diameter are being used, but even with such timbering the cost of production of the ore does not exceed the expense of drilling and blasting in hard ground.

A very large chamber has been worked out from No. 1 shaft and they are running the tailings (refuse gravel) back into this chamber, by means of a bore hole sunk into this chamber at its highest point. The original owners of the mine tried to work the ground on the same system as other Chitwood mines, without timbers, and present management deemed ground insecure and decided to fill up this old chamber. This mine seems unique in many ways, as there seems to be no "shute" or "run" of ore in any special direction. Ore is found in almost every direction; occasional black shale bars and rolls ap-

pearing, but never completely cutting off the ore. It appears more like a large sink hole than anything else.

The ore runs rich, the average weekly output of the mine being at present about 75 tons of blende, with little or no lead.

Silver Shield.

The Silver Shield is a corporation, the stock of which is owned by Bud M. Robinson and associates of Chicago. A 125-ton mill has been erected, nearly a duplicate of that at the Conqueror, adjoining on the southeast.

The mine has been opened up within the last year, the shaft now 124 feet deep having been sunk on a drill hole showing rich cuttings down to 141. Only a small drift at 95-foot level has been cut so far, but it is showing ore similar to that in the adjacent properties, hard ground with both lead and jack.

Chicago Consolidated and Cock Robin.

These two properties belong to the United Zinc Companies and are the original big producers of Chitwood camp. Both of them have produced largely in the past year, but at present they are sinking the shafts at both properties to take up further stope. A new shaft is being sunk between the two on a very rich lead prospect. Drill holes in the bottom of the present drifts indicate from 30 to 40 feet of mineral, and it is this ore that present development will reach. The Cock Robin is producing a large amount of lead, but its output of jack is limited at the present working level, but with the new development it will undoubtedly be back at its old-time record. There are two mills on the property with usual machinery for handling large quantities of ore. The mills, although of old type, have been remodeled since the United Zinc Companies purchased them last fall and are now first-class in their equipment.

Lackawanna.

The Lackawanna, a company of Scranton, Pa., capitalists, with W. S. Mears, general manager, operates a 5-acre lease on the Leonard land, as well as a 3-lot lease adjoining on the United Zinc Companies property. Their mill is a new one, with 100-ton capacity, is located on the Leonard land. On this land they have cut to the dividing line of the properties and have developed a big face of ore running across on to the United Zinc Companies ground; besides this they have a shaft down 148 feet showing ore from 100 feet on the United Zinc Companies property. *At present they are just opening up this shaft, but*

running it together with what ore they get from the face mined from the adjoining ground, they have been making large turn ins for the United Zinc companies. The formation is the same in the face from the old workings and in the new shaft, practically showing a continuous body of ore from 40 to 50 feet high between the two; this face and the new shaft are about 130 feet apart.

Great Scott.

The Great Scott, one of the richest drill holes put down on the United Zinc Companies property last year, has been developed by Messrs. Scott & Barteau. A large double compartment shaft 6x12 has been sunk to a depth of 160 feet. The shaft is in a lime bar, but on drifting at 155 feet the ore is found within 20 feet of the shaft; they have cut across the run over 50 feet at present, simply a narrow prospect drift about 10 feet wide and 8 feet high; as rich ore as has ever been taken out of any mines at Chitwood has been cut in this drift with the same quality of ore left in the bottom, sides and top. According to the drill hole record they have 45 feet of ore above them and 15 feet below them. The strike is phenomenal as a hard ground mine. Contract has been let to put up a mill at once.

The Lawrence.

Among other mines in course of development should be mentioned "The Lawrence," a 4-lot lease owned by the Lawrence Mining Co., of Lawrence, Kansas, with E. M. Robertson, superintendent. They have a shaft down 167 feet into ore. Their work is in developing two drill holes that found very good ore.

Robertson & Klock are sinking on a 4-lot lease, drill hole on which showed over 30 feet of rich cuttings.

Scott & Whitaker, adjoining on a 3-lot lease, have a similar prospect and shaft is now about 55 feet deep.

Leedy Mining Co.

The Leedy Mining Co., between the Great Scott and Lackawanna have a shaft down 145 feet with some ore in sinking, and drifts showing constantly better.

Diamond Jack.

The Diamond Jack, a 3-lot lease, belonging to Messrs. Walton & Moore, is finding very great ore at 175 feet, proving up two favorable drill holes.

At the Diamond Jack one of the handsomest calcite caves found this year was discovered. Calcite crystal from size of a pin head to

hundreds of pounds weight, line sides, bottom and top of the cave for several hundred feet. They glisten like diamonds from the miner's lights, all being of a remarkable likeness in form and of a clear, dark wine color.

JOHN JACKSON MINING CO.

This company is composed of eastern people, and is incorporated under the laws of New Jersey with a capitalization of \$105,000.00. The officers of this company are H. H. Hamell, President; B. Gumere, Secretary and Treasurer, both of Trenton, N. J., and Chas. E. Hart of Joplin, Mo., General Manager. The company owns the fee of 40 acres of mineral land just to the south of Joplin, and the lease at a royalty of 10 per cent. on 59 acres of mineral land situated about two miles to the northwest of Joplin. There are two shafts sunk on the lease to the depth of 125 and 155 feet respectively, with very rich deposits of zinc ore developed in each. The ore in the John Jackson shaft occurs in hard ground, and no timbers are necessary for the support of the drifts which are about 50 feet wide and about 60 feet high. The dirt mined here has proven remarkable in point of richness, and has continued in one drift for a distance of 865 feet in circular form, and there appears to be no giving way of the ore. This mine is one of the most noted in the southwest, and has the greatest record to her credit of any yet brought to our notice. Some idea of its richness can be gained from the fact that 33 tons of zinc ore were hoisted and cleaned up over the company's 100-ton mill in nine hours and 386,000 pounds were produced in nine and one-half consecutive shifts of nine hours each. The company purchased and began operating the property January 1, 1898, and since which time nearly 12,000,000 pounds of zinc ore have been produced, and during the first year of its operation eighty-seven per cent. of the purchase price of \$105,000.00 was paid from the net sales from the mine; the second year the mine paid sixty-four and one-half per cent., and this year it will pay about thirty per cent. The falling off for this year is due wholly to the greatly reduced price for the ore and the unwilling disposition of the company to push the mining on account of the prices received for the ore. While this company has one of the greatest mines in the Joplin district, its success is very largely attributable to the company's energetic and efficient manager, Mr. Chas. E. Hart, who has never for a moment lost sight of the fact that successful mining, even though the mine is rich, must be attained through proper management and business-like operations. The company has a well

constructed and complete mill supplied with pumps, machinery and all appliances necessary for treating the ore and preparing it for the market, and employ ten ground men and six top men. A royalty of 20 per cent. is charged all sub-leases, but at the present time there is but one sub company operating which is mentioned below.

Jack Johnson.

The "Jack Johnson" is composed of members of the John Jackson Mining Co., who have a sub-lease at a royalty of 20 per cent., and have one shaft sunk to a depth of 155 feet in which good zinc ore has been developed in soft ground that requires timbers for the support of the drifts. The ore appears extensive, but only about a twenty-foot drift can be successfully carried. They have a complete 100-ton mill, employ seven men and produce about thirty tons per week.

THE JACKSON, JR., ZINC CO.

This company is incorporated under the laws of New Jersey, with A. S. Elliott of Willmington, Delaware, as president and A. H. Waite of Joplin, Mo., secretary and treasurer, and Chas. E. Hart of Joplin, Mo., general manager. The company owns a lease at twelve and one-half per cent. royalty on 20 acres of mineral land adjoining the John Jackson on the south. Three shafts have been sunk on this lease ranging in depth from 147 to 155 feet with zinc ore developed in each. The largest face being mined, however, is in shaft No. 3, and which is being cut forty feet wide and fifty feet high in hard ground that requires no timbers for the support of the drift. The dirt hoisted here is reported to run 12 per cent. cleaned ore, and a production of about forty tons of high grade zinc ore per week is made. The company has erected a large and complete concentrating mill, equipped with sufficient boiler and engine power, a 16-inch crusher, and all other machinery and appliances necessary for successfully handling the ore. This is an excellent new mine and gives employment to about 22 men.

THE TAYLOR 157 ACRES.

The "Taylor" 157 acres is a tract of mineral land situated about two miles west of Joplin, and is being developed by lessees. The land has been very thoroughly tested by the drill, and extensive ore bodies found to exist. The ground is of a hard character and no timber will be found necessary for the support of the drifts if properly mined. There appears to be both shallow and deep ore, as is shown by the drift holes and shafts; the upper run occurring at about the 80-foot level.

While the lower ore is encountered at from about 160 to 200 feet below the surface. While the work of developing is somewhat slow on account of the hard ground, extensive ore runs are known to exist and the tract is most certain to become a factor among the mineral producing lands of the district in the near future. Following are some of the operators:

Peoria Lead and Zinc Company.

The "Peoria" is an incorporated company with Mr. Harman as superintendent. The company owns a lease on forty acres of the "Taylor" land at a royalty of ten per cent., and have one shaft sunk to the depth of 184 feet in which ore was encountered at the 166-foot level, and continued very generally to the bottom of the shaft. One drift has been cut a distance of 30 feet for the purpose of developing the ground, and was found that the ore continued its full length. Five drill holes have been sunk, which penetrated zinc ore at various levels from 160 to 220 feet. The ore is disseminated through the hard flint ground. The company has now in use one pump, an air compressor with which the ground is broken, and a steam hoister, and will erect a complete steam concentrating plant.

Hastings Mining Company.

This company is composed of G. H. Hastings of New York, and others. They control ten acres of the "Taylor" land at a royalty of ten per cent., and have demonstrated the existing ore bodies by drill.

Black Cat Lead and Zinc Company.

This company has a lease on 78 acres of the "Taylor" land, with McPherson and Geiser of Joplin, Mo., as managers. Five drill holes put down showed the existence of ore bodies from 60 to 100 feet and from 160 to 200 feet below the surface. The drill cuttings showed rich ore, and two shafts are now in process of sinking.

G. W. Hall and Company.

This company has a lease on four lots of the "Taylor" land at a royalty of 15 per cent., and are sinking a shaft to develop the ore demonstrated by drill.

P. E. Hannum and Company.

The "Hannum" company has lease on 11 lots of the "Taylor" land, and is developing the ore at the 80-foot level. The ore appears to exist nearer the surface here than at any other point on the "Taylor" land. A steam hoister and pump are in use,

CROSSMAN DRILL CHART.

Showings of 1654 Drill Holes drilled by L. P. Crossman & Bros. in the Joplin and Webb Counties extending over a period of nearly thirty years.

SURFACE.

500 holes 50 feet deep.	Drill Hole	3 per cent found ore.
450 holes 100 feet deep.		8 per cent found ore.
400 holes 150 feet deep.		25 per cent found ore.
125 holes 250 feet deep.		34 per cent found ore.
100 holes 300 feet deep.		No. ore.
25 holes 400 feet deep		No ore.
12 holes 500 feet deep.		75 per cent found 40 to 60 feet of ore.
8 holes 600 feet deep.		50 per cent found 40 to 60 feet of ore.
8 holes 700 feet deep.		No ore.
7 holes 800 feet deep.		No ore.
6 holes 900 feet deep.		50 per cent found ore.
9 holes 1,000 feet deep.		No ore.
2 holes 1,100 feet deep.		50 per cent found zinc 1,076 to 1,100 feet
2 holes 1,200 feet deep.		No ore.
2 holes 1,400 feet deep.	Drill Hole	No ore.

EMPIRE ZINC COMPANY.

The Empire Zinc Company owns the fee of 240 acres of mineral land situated just to the south of Joplin on which there are fifteen shafts sunk to an average depth of 46 feet in which ore has been developed. The company does principally a leasing business, and there are now two hand jig plants being operated, thirteen steam pumps, eleven steam hoisters and fifteen horse hoisters. Ore was mined and sold during the past fiscal year amounting to \$15,080.20. There appears to be more activity on this property than formerly, and the operators are as follows: W. R. Calkins, Hadley & Crawley, Noble & Co., Heilman & Co., 20th Century, Hard Telling Mining Co., Hayes & McGuire, John R. Holmes, T. G. Writer, Statel & Co., Campbell & Sheldon, Graham & Co., Meanis & Terrick and Brookside Mining Co.

AUNT PATTY MINING CO.

This mining property is owned by H. H. Gregg of Joplin, Mo., and is situated about four miles to the southwest of Joplin. There are 80 acres in the tract owned by Mr. Gregg, and there are three shafts sunk to an average depth of 80 feet, in which ore has been developed. The improvements consist of four hand jig plants, one steam pump, three steam hoisters and four horse hoisters.

BUNCO MINING COMPANY.

This company is composed of W. E. Brinkerhoff, Thos. Herran, Byron Ash, R. S. Stickney, Jas. Luke and Hall & Hill of Carthage, Mo., and S. J. O'Neill of Galena, Kansas. The company owns a lease on twenty-seven acres of mineral land situated at Cave Springs, and pays a royalty of ten per cent. on all minerals mined. There are two reducing shafts, while the improvements consist of one complete concentrating mill, one hand jig plant, two pumps and two steam hoisters. They mined and sold during the past fiscal year ore to the value of \$23,003. Companies operating on the land are: Sumner & Fredrick, Hodson & Co., Big Hickory, Sunny Slope and Juner Mining Co.

BOB MOORE MINING CO.

The Bob Moore Mining Company is composed of Frank L. Yale, A. A. Moore, A. M. Wagner and J. A. Weeks, with Mr. Yale as manager. Their lease covers forty acres of land owned in fee simple by

John H. Taylor of Joplin, Mo., and is situated about two miles to the northeast of Joplin. One shaft is sunk to the depth of 110 feet, from which there was mined and sold during the past fiscal year ore to the value of \$10,337.86. The mining improvements consist of a steam hoist and one hand jig plant.

MASSASOIT LEAD AND ZINC COMPANY.

The Massasoit Lead and Zinc Company is operating a tract of mineral land containing ninety-five acres, and situated just to the southeast of Joplin. There are five shafts sunk on the property, ranging in depth from 60 to 170 feet, in which ore has been developed, and during the past fiscal year there were mined and sold from these shafts 3,600 tons of zinc ore and 310,000 pounds of lead, bringing to the operators the sum of \$108,396.42. Both lead and zinc ores are produced and the land is certainly a most promising tract for mineral. There are two complete concentrating plants on the land, one of which was erected during the past year, five hand jig plants, four steam pumps, one air compressor, five steam hoists and two horse hoists. The following are operating on the land: Geo. E. Starr, Chas. E. Eads, Claud Calvin, Chas. M. Clinton, J. A. Goodrich and John O'Keefe. The mines are under the management of W. D. Mann of Joplin, Mo.

YALE & O'BRIAN.

This mining property is owned by F. L. Yale of Joplin, Mo., and W. A. O'Brian and is under the management of Mr. Yale. Their mining lease covers forty acres situated near Joplin, and it produces both lead and zinc ores. There is one shaft producing, and during the past fiscal year there were mined and sold 715,235 pounds of lead and 266 tons of zinc ore, with a valuation of \$27,213.83. The mining improvements on the lease consist of one complete concentrating mill, two steam pumps and two steam hoisters. The company operating on the lease is the Consolidated Zinc and Lead Co.

RABBITT'S FOOT ZINC MINING COMPANY.

This company is operating forty acres of mineral land situated near Central City and about five miles west of Joplin. Two shafts have been sunk on the land, 100 and 120 feet in depth, respectively, and during the past fiscal year zinc ore to the value of \$17,000 has been mined and sold. There is one complete concentration mill on the lease, one steam pump and one steam hoister. The mines are managed by S. G. Graves of Joplin.

MOONSHINE MINING COMPANY.

The "Moonshine" comprises 56 acres of mineral land situated about one mile west of Joplin, with three shafts producing ore, ranging in depth from 85 to 110 feet, and during the past fiscal year yielded ore to the value of \$6,654. The operators on the land are the United Zinc Company and the Denham Mining Company, and their improvements consist of three hand jig plants, two steam hoisters and one horse hoist. The secretary of the "Moonshine" is W. S. Paul of Joplin, Mo.

WARREN ARMINGTON.

Warren Armington is operating forty acres of mineral land situated near Joplin, on which he has five shafts sunk from 70 to 140 feet, in which both lead and zinc ores have been developed, the principal production being zinc ore. At the present time there is one complete concentrating mill on the lease, eight hand jig plants, two steam pumps, two steam hoists and one horse hoist. During the past fiscal year there were produced and sold from this land zinc and lead ores to the value of \$18,500.

HILL TOP MINING COMPANY.

This company is composed of Carl Rankin and Burt Selly, who operate six acres of mineral land situated near Cave Springs. They have one shaft sunk to the depth of 114 feet in which they have developed both lead and zinc ore, but the returns during the year were light, there being only \$1,475.95 of ore produced.

WRIGHT MINING COMPANY.

The Wright Mining Company is composed of Frank L. Yale of Joplin, Mo., W. A. O'Brian and J. L. Zeidler, with Mr. Yale as manager. This mining lease covers 22 acres of mineral land situated about two miles to the northwest of Joplin. There are two shafts being operated on the lease at the depth of 140 feet, and during the past year there were produced and sold ore to the value of \$9,539.35. The company pays a royalty to the land owner of ten per cent. and charges the operators a royalty of twenty per cent., the company doing only a leasing business. The improvements on the lease consist of one complete concentrating mill, one hand jig plant, three steam pumps and three steam hoisters. The operators on the lease are as follows: *Xeno Mining Co., Jackson Mining Co., and Old Hickory Mining Co.*

THE JOHN TAYLOR 100 ACRE TRACT.

This tract of land is situated just to the west of Joplin and contains 100 acres. The land is owned by John H. Taylor of Joplin, Mo., who does only a leasing business in mining. There are two complete mills on the land besides good strikes of zinc ore on the land where there are no mills. The land is joined on the north and south by good producing properties and is itself a good tract of mineral land if properly opened up. The Sunday Mining Company, has one of the most complete mills in the district and will doubtless make good productions when the deeper mineral, known to exist is reached. This company has a lease on 12 lots at a royalty of 20 per cent. Their mill is modern and well equipped throughout and was erected at a cost of between \$8,000 and \$9,000.

JOPLIN PROSPECTING COMPANY.

On the Taylor Land.—This company is operating a lease on 40 acres of the John H. Taylor's 100-acre tract at a royalty of 12½ per cent. and have a complete concentrating mill in operation known as the "I Know." The ground at this mine is mostly open and some exceedingly rich bodies of zinc ore are encountered. The mine has been producing for many years and has proven itself to be one of the most solid of Joplin's mineral properties. Their plant is equipped with all necessary machinery and appliances for treating the ore.

THE MINGO MINING COMPANY.

The "Mingo" company owns a lease at twelve and one-half per cent. royalty on 20 acres of the John H. Taylor land and has developed a good body of zinc ore in hard ground at about the 110 foot level. This property is new and the company is sinking the second shaft for air and further developments of the ground. This property bids fair to become a good producer.

McCULLOUGH-BROWNEE MINING COMPANY.

This company is operating just to the north of Webb City and controls a first lease on 80 acres of mineral land at a royalty of 10 per cent. on all minerals mined. The land is owned in fee simple by G. P. Ashcraft of Webb City, Mo., and Albert Kelley of New York. Prospecting was begun here several years ago and very good bodies of zinc ore developed at about the 175-foot level in hard ground that

requires no timbers for support of drifts when properly mined. There are two complete concentrating mills on the lease that have been in operation a part of the past year with fair results for the time operated. The ground carries both lead and zinc ores and during the fiscal year there were mined and sold 403 tons of zinc and 237,000 pounds of lead ore. The company has \$25,000 invested in plants and lease. The property is under the management of H. G. King of Webb City. Mo.

BOQUA MINING COMPANY.

The Boqua Mining Company is composed of E. A. Boqua, E. L. Anderson and N. K. Elliott, who own a lease on what is known as the Norton land containing 70 acres, situated just to the west of Joplin, and has the Taylor land adjoining on the north while it is joined on the south by the Continental. The land is only partly developed but from existing ore bodies shown on the adjoining lands and the new developments made on the land itself, it will certainly prove profitable for those engaged in mining it. There are seven shafts sunk on the lease ranging in depth from 90 to 175 feet with some very rich bodies of ore encountered in hard ground. There are two complete concentrating mills on the lease supplied with all the necessary machinery and appliances for handling the ore, besides there is one hand-jig plant there are four steam hoisters, one horse hoister and one air compressor. The property is managed by E. A. Boqua of Joplin.

REDING MINE.

This property consists of forty acres of mineral land situated about four miles south of Joplin with a valuation of \$45,000. There are two shafts sunk, one to 90 and the other to 106 feet with good bodies of ore developed in open ground that requires the use of timbers for its support. The dirt hoisted has proven very rich, some of it running as high as 20 per cent. cleaned ore. The improvements consist of one complete concentrating mill, five hand jigs and a pumping station located 1,800 feet away from which water is forced through a pipe to the mill for general milling purposes. The present management is in the hands of S. M. Smith of Joplin, Mo.

T. E. KIRKBRIDE MINING COMPANY.

This company owns a lease on 90 acres of mineral land situated within the eastern limits of Joplin and has 15 shafts sunk to an average depth of 80 feet, all of which have developed ore. For many years this land *has been considered* a very heavy water proposition but

when the present company took hold during the past year they handled the water without a great deal of trouble and now the land is in a fair way to become one of regular and profitable producers of the district. The improvements on the lease consist of two complete concentrating plants, six hand jig plants with a total of 20 hand jigs, six pumps, and 12 horse hoisters. There are twenty prospectors on the lease. The management of the property is in the hands of T. E. Kirkbride of Joplin, Mo.

BECKEY SHARP MINING COMPANY.

The Beckey Sharp Mining Company, is incorporated under the laws of Missouri and capitalized at \$25,000 with A. F. Donnan, president; Hon. F. W. Mott of St. Louis, Mo., vice-president, and F. R. Mott as secretary. The company is operating a lease on forty acres of the Hiram Snapp land situated about three miles to the north of Joplin, a royalty of ten per cent. is paid on all minerals mined. Only a leasing business is done by this company and a royalty of twenty per cent. is charged the operators on the lease. A large number of shafts have been sunk on the land with an average depth of about 120 feet at which level the principal ore bodies are developed, yet ore has been developed at a very shallow depth and at various levels to a greater depth. The ore is free and occurs in open ground making it an easy matter to clean the ore over hand jigs. The company maintains a pumping plant for drainage purposes when the water becomes too strong.

GRAND MASTER MINING COMPANY.

The "Grand Master" is an incorporated company under the Missouri laws with T. J. Taggart of Butler, Mo., president; A. F. Donnan of Joplin, secretary and treasurer; Jas. Roach, manager, and is capitalized at \$10,000. The company is operating six lots of the Beckey Sharp lease and pay a royalty of twenty per cent. on all minerals mined. They have three shafts sunk to a depth of 125 feet at which level the ore bodies are worked. The ore occurs in soft ground that requires timbers for the support of the drifts, employ sixteen men and make a weekly production of about twenty tons of zinc ore. The improvements here consist of a 40-horse power boiler, a 10-horse power engine, one steam hoister, one centrifugal and one duplex pump and four hand jigs.

REX MINING & SMELTING COMPANY.

The Rex Mining & Smelting Company is incorporated under the laws of Missouri and capitalized at \$250,000, with Ed. D. Porter of

Joplin, Mo., president, treasurer and general manager of the company's business, W. H. Picher, secretary and O. H. Picher, first vice-president; Jas. M. Carpenter, second vice-president. The above gentlemen are also directors of the company and associated with them is Jas. M. Campbell of St. Louis, Mo. This company is one of the strongest now operating in the Joplin district and owns in fee simple 1,005½ acres of mineral land situated about two miles to the southeast of Joplin, on which there are 20 shafts in which ore has been developed. These shafts range in depth from 60 to about 150 feet and are principally in open ground that require timbers for the support of the drifts. The company does a leasing business only, charging the operators a royalty of 20 per cent. on all minerals mined and also requires them to do their own draining of the ground. Two steam drills are kept in operation by the company and no shaft is allowed to be sunk on the land except at a point where the ore has been demonstrated by the drill in sufficient quantity to warrant sinking shaft. This special inducement thrown out enables the company to secure operators with sufficient capital to develop and mine the land properly. There are several companies operating on the land who have complete concentrating plants and the great worth of the property can better be judged by its productions. There were produced from this land from January 1st, 1899 to October 1st, of the same year 840,850 pounds of lead and 4,448,670 pounds of zinc ore from which the company received as royalties \$17,708.61. There were produced from the land from May, 1892, to October 7th, 1899, 67,302,720 pounds of zinc and 17,090,070 pounds of lead ore which sold for \$1,061,280.20. The land produced during the fiscal year ending June 30, 1900, 1,951,000 pounds of lead and 4,769,500 pounds of zinc ore from which the company and operators received \$121,639. This is a most remarkable showing and a visit to the mines would indicate that a very small portion of the land is being operated.

HENRY DIGBY.

This lease contains 80 acres at a royalty of 10 per cent. and is the property of Henry Digby of Joplin, Mo., the land being owned in fee simple by J. H. Ward and the Ruby Mining & Smelting Co. There are 14 shafts sunk on the land ranging in depth from 70 to 100 feet, five of which have developed ore in medium ground but in some drifts timbers are necessary to hold the ground from caving. The ore faces usually run about 15 feet in thickness and the ore mined is *of fine quality*. The lessee sub-leases to operators at a royalty of 20

per cent. There is a complete concentrating mill equipped with 100 horse power boiler capacity, 60-horse power engine, crusher, roll screen, elevators, two steam hoisters, steam condensor and two steam pumps. The ground is easily drained, there being just sufficient water for milling purposes.

ROSE MINING COMPANY.

The Rose Mining Co. is composed of Joe E. Aldrich of Joplin Mo., Thos. Rose and E. W. Kelley of Muncie, Ind. They own the fee of 20 acres of mineral land situated just to the south of the city of Joplin, and do only a leasing business, charging operators a royalty of 20 per cent. The ore is encountered in open ground at from 50 to 70 feet below the surface and is very promising for new ground. The ore is worked yet in a primitive way, horse hoisters and hand jigs, only, being in use, but steam power is expected to be put in use at an early day. While the use of timbers is required, the ground is easily held. Both lead and zinc ores are produced. The operators on the land are as follows: Jake Staab, four lots with shaft 55 feet deep; Wes Keller, three lots with shaft 40 feet; Karney & Thurman, four lots with one shaft 50 feet; Leigh & Co. have one shaft to the depth of 60 feet.

ANNIE ROONEY.

The "Annie Rooney" is the property of J. E. Aldrich and others and is situated about three miles to the southwest of Joplin in Gordon Hollow. They have a ten-acre lease at 20 per cent. royalty, and have developed a splendid mine at the depth of 50 feet in timbering ground. The drifts are cut about 12 feet wide and about 15 feet high in ground that is said to run $12\frac{1}{2}$ per cent. ore that assays 58 per cent. The richness of the ground is shown in the fact, that from 35 to 50 tons of zinc ore are produced weekly besides a heavy production of lead. On account of the low prices for mineral, they have allowed the zinc ore to accumulate in the bins until they have between 500 and 600 tons on hand. Their improvements consist of one modern and complete concentrating mill supplied with all necessary machinery for successfully treating the ore.

MARGURETTE ROSE.

This company is composed of J. E. Aldrich of Joplin, Mo., and E. W. Keller of Muncie, Ind. They are the owners of a 15-acre lease at a royalty of 15 per cent. located in the Kansas City bottoms just to the north of Joplin. This is a new mining property and the ore

occurs at from 36 to 72 feet below the surface and is of such richness that one hand jig man cleans up 14 tons per week. Very little lead ore is produced here, but the ground is remarkably rich in zinc of a high grade. The company has a steam hoister and works only two men at the 39-foot level in open ground. The owners of the fee of this land are John H. Taylor of Joplin and the Consolidated Lead & Zinc Mining Co., while the lease is under the management of J. E. Aldrich.

HAFFNER & CARIL.

J. E. Haffner and Mr. Caril are the owners of a lease on 60 acres of mineral land, which is owned in fee simple by Gilbert Barbee, Thos. Conner and J. L. Briggs of Joplin, Mo. and James Campbell of St. Louis, Mo. The lessees pay a royalty of 15 per cent. on all minerals mined and charge the operators on the lease 25 per cent. royalty, the company doing only a general leasing business. Some 50 shafts have been sunk on the land ranging in depth from 60 to 112 feet and the ore has been encountered in more than one fourth of them. Good bodies of ore have been developed and the lease has a busy appearance, but the improvements as yet consist only of horse and steam hoisters while the ore is cleaned over hand jigs. The company maintains an office and scales, and a pumping plant with which the ground is drained.

CLOVERDALE MINING COMPANY.

This company is composed of Eastern gentlemen who own a lease at 15 per cent. royalty on seven acres of land situated in the Midway district three miles to the northeast of Joplin and which is owned in fee simple by W. M. Robinson of Jefferson City, Mo., and a first lease on eleven acres adjoining on the north at ten per cent. royalty which is owned in fee simple by the Harrison Bros. of Webb City, Mo. The Cloverdale people purchased these two leases during the past year of John G. Gray, J. A. Bowman and Geo. W. Davidson of Webb City, Mo., and since the purchase very satisfactory operations have been experienced. On the seven acres, four shafts have developed zinc on at about the 115 to 120-foot level. One of these shafts is operated as a sub-lease by Mr. Fincke and others, who have a crusher plant and hand jigs. The other ground is operated by the Cloverdale Co. It has a complete concentrating mill supplied with all the necessary machinery for treating the ore, and a lift pump of sufficient capacity for draining the ground. On their eleven acre tract, they have also a

complete mill for reduction purposes and have recently developed very fine body of zinc ore. These leases are both surrounded by other good mineral properties.

BAILEY & STICKNEY.

This company is the owner of the first lease on 12 acres of land situated about two and one-half miles east of Joplin, at a royalty of ten per cent. the land being owned in fee simple by the Weyman Bros. of Joplin, Mo. There are three very well developed mines on the lease at a general depth of about 90 feet and from which very good turn-ins are made. There are two steam hoisters and one horse hoist used on the lease while the ore is cleaned over hand jigs.

WEYMAN & McCONEY.

This company has the fee of 60 acres of land situated in the Miami way district about three miles northeast of Joplin. The company does only a leasing business and charge operators with hand jigs 20 per cent. royalty while only 15 per cent. is charged operators with a mill. This difference is made to encourage the erection of concentrating plants on the land. Some six or seven shafts have been sunk on the land of sufficient depth to develop the ore and two new mills have recently been erected: one of them by the Colorado-Joplin Co. and the other by Bacon & Bailey. The mills are both modern and are supplied with the necessary machinery for handling the ore.

GRANBY MINING & SMELTING COMPANY AT JOPLIN.

This company in addition to the lands owned in Newton county owns the fee simple of 1,080 acres of land at and near Joplin on which there are fifteen complete concentrating plants and some of the best producing mines in the Joplin district. The business of the company at Joplin is in charge of Supt. J. H. Stephens who has served the company in that capacity since 1885, and under whose management there have been produced more than 51,000,000 pounds of zinc ore and over 13,000,000 pounds of lead ore. All the lands of the company here are operated by sub-lessees on the royalty plan, the same as other leased grounds of the locality and the liberal terms offered by the company to reliable operators and miners has brought to its lands some of the best class of miners and operators in the district. The company's lands are situated principally due north of Joplin. We mention below some of the operators on the Granby land.

Estrada.

R. Estrada controls eleven and one-half lots of the Granby land by lease and operates one shaft at a depth of 142 feet. The ground is hard and carries both lead and zinc ore. He has a complete mill supplied with all the necessary machinery for successfully handling the ore.

Blakey No. 2.

The Blakey No. 2, is composed of Ed. Atchison, O. G. Atchison, Mrs. Geo. Wadleigh and Mr. Hartley. They have a lease on four lots of the Granby land with one shaft at a depth of 140 feet. The upper run of ore occurs at about the 80-foot level while the lower run occurs at the bottom of the shaft and is about 30 feet in thickness with ore set in the bottom. They have a steam hoister and four hand jigs, and produce about 10 tons of zinc and 5,000 pounds of lead ore per week.

J. W. Kelley & Company.

This company is operating on the Granby land and controls four lots. They have two shafts down to the depth of 130 feet and have two runs of ore, the upper run occurring at about the 80-foot level and both of which are being worked. The company has a complete concentrating mill with which the ore is handled. The mine is under the management of J. W. Kelley.

The Edith Mining Company.

The "Edith" is composed of J. W. Kirkbride and S. N. E. Priddy, who control by lease 8 lots of the Granby land at a royalty of 15 per cent. on zinc and 20 per cent on lead ore. They have one shaft sunk to the depth of 120 feet with a very good face of ore. They have a complete mill and make fair productions.

Chicago Zinc Mining Company.

This company is incorporated under the laws of Missouri and is managed by F. B. Wilcox while C. M. Stark is superintendent. They have ten lots of the Granby land with three shafts sunk to an average depth of 130 feet. They have complete mill with which the ore is handled and pay the Granby Company 20 per cent. royalty on zinc and 25 per cent. on lead ore. A fair face of ore occurs here in hard ground, which does not require the use of timbers for its support.

Wahsatch Mining Company.

This company is composed of C. E. and A. H. Mayne who control by lease, seven lots of the Granby land and operate one shaft at the depth of 100 feet. They are operating in a very good run of zinc ore in soft ground and pay a royalty of 20 per cent. on zinc and 25 per cent. on lead ore. Their mill for handling the dirt is complete and the ore produced is of a very high grade. The mine is under the management of C. E. Mayne.

G. W. Belk & Company.

Belk & Co. own the lease on ten lots of the Granby land and operate one shaft at the depth of 40 feet. Zinc ore only is produced here, and a royalty of 15 per cent is paid. The company has a complete concentrating mill with which the ore is cleaned ready for the market.

The Continental Zinc Company.

This company is incorporated under the laws of Delaware with L. B. Plimpton of Hartford Conn. as president and Herbert Bullard as manager. The company owns a lease on eight lots of the Granby land at a royalty of 15 per cent. They operate one shaft at a depth of 130 feet and have developed an excellent face of zinc ore in hard ground. They have a complete concentrating mill in operation and produce about 20 tons of zinc ore per week.

The Bay State Mining Company.

The "Bay State" is incorporated under the laws of Mass. With Henry Bothfeld of Newton, Mass. as president and Mr. Johnson as manager. The company owns a lease on six and one-half lots of the Granby land at a royalty of 15 per cent. on zinc and 20 per cent. on lead ore. They have two shafts sunk on the lease, 118 and 140 feet respectively and have developed good lead and zinc ore in hard ground. They have a complete concentrating plant with which the ore is cleaned.

Leadville Hollow Zinc & Lead Company.

This company is incorporated under the laws of Missouri with F. B. Wilcox as president and C. M. Stark, manager. The company owns a lease on six lots of the Granby land and has two shafts sunk to a depth of 140 feet in which a fair body of zinc ore has been developed in hard ground. This company has also a complete mill on its lease with which to reduce the ore.

Delta Lead & Zinc Company.

This company is composed of A. B. Wilgus of Joplin, Mo. and J. F. Greene of Boston, Mass. They are the owners of a lease of six lots on the Granby land and have two shafts sunk to a depth of 135 feet in which good deposits of ore have been developed in soft ground. The company has erected a complete concentrating plant with which to handle the ore and pay a royalty of 15 per cent.

The Corn Palace Mining Company.

The "Corn Palace" is incorporated under the laws of Iowa with Wm. Radcliff, president, and Mr. Kieth of Joplin as manager. The company owns a lease on ten lots of the Granby land and operate one shaft at the depth of eighty feet in soft ground. They have erected a up-to-date mill with which to handle the ore and pay a royalty of 10 per cent.

Locust Mining Company.

This company is composed of the English Bros. of Joplin, Mo., who own a lease on six lots of the Granby land and have two shafts sunk to the depth of 130 feet, at which depth a fair face of ore has been developed in hard ground. They have erected a mill for handling the ore and pay a royalty of 20 per cent. on zinc and 25 per cent. on lead ore.

Sully & Company.

Sully & Company have a lease on sixty acres of the Grandy land and pay a royalty of ten per cent. They have some eight shafts sunk on the lease, most of which are in soft ground. Very fair bodies of ore have been developed of both lead and zinc and fairly good turnins are made. This lease is under the management of John M. Sully.

Tailing Mills.

There are two tailing mills on the Granby land, one of which is owned by the Oswald Tailing Mill Co. and the other by Wm. Brugger. The tailings from plants on the Granby land are taken to these mills for a second treatment.

Corl & Company.

This company is composed of Marx Corl, J. W. Vandiventer and J. W. Boughton. They own a lease on eleven lots of the Granby land and operate one shaft at the depth of 115 feet, at which depth a good deposit of both lead and zinc ore has been developed in hard ground.

The company operates a pump with which the ground is drained and water furnished for cleaning purposes. They have a steam hoister and clean the ore over three hand jigs.

Starr Mining Company.

This company has a lease on six lots of the Granby land with one shaft sunk to the depth of 130 feet and fair ore developed in hard ground. The dirt is hoisted by steam and cleaned over two hand jigs. The company is erecting a crusher plant.

Cliff Mining Company.

This company is composed of Henry Crossman, Wm. Gaunt and W. E. Dean. They are the owners of a lease on 14 lots of the Granby land and have two shafts sunk to the depth of 70 feet at which level both lead and zinc ores have been developed in good quantities in hard ground. A royalty of 20 per cent. on zinc and 25 per cent. on lead ore is paid and a weekly turn-in of about 10 tons of zinc and 3,000 pounds of lead is made. The company has a pump, steam hoister and cleans the ore over three hand jigs.

Frank Bell & Company.

This company is composed of F. J. Bell, J. H. Lamar, B. Hoge and L. F. Miller. They operate two lots of the Granby land and have one shaft sunk to the depth of 110 feet with good ore developed in hard ground. They have a steam hoister, two hand jigs, and produce about 8,000 pounds of lead ore per week.

The Four Johns.

The "Four Johns" is composed of John R. Holmes, John Cape, John Marrs and John Tutt. They are operating two lots of the Granby land and have one shaft sunk to the depth of 130 feet and have developed good lead ore in hard ground. Their productions reach from 12,000 to 20,000 pounds of lead ore per week. They have a steam hoister and clean the ore over two hand jigs.

Grace No. 1.

Grace No. 1, is composed of J. W. Kirkbride and S. N. E. Priddy who have acquired a lease on 12 lots of the Granby land and have one shaft down to 120 feet with good ore developed in hard ground. The company operates a pump and steam hoister, and clean their ore over the Edith mill, a weekly production of about 12 tons of zinc and 5,000 pounds of lead ore is made.

NORTH HEIGHTS ADDITION.

The North Heights mining property consists of 200 city lots situated in the north part of the city of Joplin and are owned in fee by D. H. Hart of Lincoln, Illinois. They are the unsold lots of the North Heights Addition and under the efficient management of Frank L. Yale of Joplin, are proving very profitable from a mineral standpoint. There are ten shafts operated by the lessees on the land ranging in depth from 100 to 140 feet, the ore occurring in medium hard ground and of high grade zinc. The improvements on these lots consist of two complete concentrating mills supplied with all the necessary machinery and appliances for successfully treating the ore, eight hand jig plants with fifty hand jigs, five steam pumps, ten steam hoisters, five horse hoisters, etc. During the fiscal year there were produced and sold from the lots, 1033 tons of zinc ore and 126,520 pounds of lead ore, the total value of which was \$43,924.44. Mr. Yale does only a leasing business and we find the following operators on the land: North Heights M. & M. Co., Georgia City Mining Co., Kansas City Mining Co., Topeka Mining Co., War Eagle, She Mining Co., Wahoo Mining Co., Parker-Horton, and Haywood & Co.

DIGBY, MILL & MINING COMPANY.

This company is incorporated under the Missouri laws and capitalized at \$24,000 with H. J. Wendall of Wheeling, W. Va., president, and Geo. T. Digby of Joplin, Mo., secretary, treasurer and general manager. This lease covers 48 acres of land owned in fee by Ex-Gov. Wm. J. Stone, W. C. Wetmore and others of St. Louis, Mo. A royalty of ten per cent. is paid on all minerals mined; this land is situated about two and three-fourths miles to the northwest of Joplin. There are two shafts sunk to the depth of 90 feet in which a forty-foot face of zinc ore has been developed in different drifts driven from the shafts, thus making it a very attractive tract of mineral ground. The ore occurs in both open and hard ground and is of good quality. This mining property is new but very promising, the weekly production reaching from 25 to 30 tons of zinc ore. The improvements consist of a complete concentrating mill supplied with the necessary machinery and appliances for successfully handling the ore, two steam hoists, one 6-inch, one 3-inch and one 2-inch pumps. The ground is easily drained and there is *only sufficient water* for milling purposes.

FREEMAN, LAND & MINING COMPANY.

The Freeman, Land & Mining Co. is composed of Miss. Eulab Freeman and Amos Freeman of Joplin, Mo. They control a lease situated just to the southwest of Zincite covering forty acres of mineral land at a royalty of ten per cent. This is a new mining property, but from present indications will become a profitable lease. One shaft has been sunk to the depth of 132 feet in which a very good body of zinc ore has been developed. Their improvements consist of a crusher plant, one steam hoist and seven hand jigs. They produced 190 tons of zinc ore during the short time operated before the close of the fiscal which sold for \$5,633.20.

A NO. 1 MINING COMPANY.

This company controls a lease on 20 acres of mineral land owned in fee simple by the Roaring Springs Mining Company, situated about five miles south of Joplin and has two shafts sunk in which ore has been developed at 110 and 115 feet below the surface. This is comparatively a new property but during the past year it produced 801 tons of zinc and 306,765 pounds of lead ore valued at \$34,518. This is a very promising tract of mineral ground and from present appearances will increase in future productions. The property is under the management of Geo. E. Starr of Joplin, Mo.

INDEPENDENCE LEASE.

The Independence Lease is situated about three miles to the northeast of Joplin, and is the property of Graves, Smith & Schmidt of Joplin, Mo. This lease contains 106 acres of mineral land at a royalty of ten per cent. the land being owned in fee by Mr. Miller of Webb City, Mo. There are two shafts sunk on the lease to the depth of 153 and 165 feet respectively in which good bodies of zinc ore have been developed and a most satisfactory production is being made. The company has \$12,000 invested while its improvements consist of two steam pumps, two steam hoisters and eleven hand jigs. The property was only opened up to the point of profitable productions a short time prior to the close of the fiscal year but during this short time the product was valued at \$9,352.50.

MONTGOMERY LEAD & ZINC COMPANY.

The mineral lands owned by the Montgomery Lead & Zinc Co. comprises 200 acres situated about two miles to the northwest

plin and is under the management of Lee Taylor of Joplin, Mo. The land is valuable for mineral purposes and has about fifteen shafts sunk that have developed zinc ore ranging in depth from 60 to 120 feet. The greater portion of the land is leased to operators in lots from 10 to 32 acres at a royalty of 10 per cent. and on which there have been four concentrating mills erected. Mention follows of some of these operators.

Ben Bogy Mining Company.

The Ben Bogy Mining Co. is composed of Lee Taylor and Ben Bogy of Joplin, Mo., who have a lease on 32 acres of the "Montgomery" land at a royalty of 10 per cent. This company does a mining and also a sub-leasing business, and charge their operators 20 per cent. royalty. The company itself has two shafts sunk to 70 and 114 feet, respectively, in hard ground, with ore developed in each shaft. This is comparatively a new mine and hardly sufficiently opened up for continuous operation, but sufficient development work has been done to prove beyond doubt that a most extensive and rich deposit of zinc ore exists. They have a complete concentrating mill, employ fourteen men and produce about 20 tons per week.

Thuen Bros.

This company has four lots of the "Montgomery" land sub-leased from the "Bogy" company at a royalty of 20 per cent. They have a 30-foot face of zinc ore developed at the 90-foot level that shows well. The ore from this mine is hauled in wagons to a mill owned by the company and operated on another portion of the land for reduction.

Smith & Company.

Smith & Company control three lots of the "Montgomery" land at a royalty of 20 per cent. and have three shafts sunk. They have a good face of ore developed in one of the shafts and use a steam pump, steam hoist and two hand jigs.

Hunter Bros. & Yorcho.

This company operates two lots of the "Montgomery" land and is sinking a shaft in which both lead and zinc ore are being developed. A horse hoister is being used for hoisting purposes.

THE INDIAN RIVER RYE MINING COMPANY.

This company is composed of Wm. Fahrman, Ben Ensing and John Varner of Webb City, Mo., and John Spingler of Kansas City, with Mr. Fahrman secretary and Mr. Varner as general manager.

ger. The company is incorporated under the laws of Missouri and owns a lease of 20 acres on the Triad land situated about two miles northeast of Joplin at a royalty of $17\frac{1}{2}$ per cent. There are now five shafts sunk on the lease in which zinc ore has been developed in large quantities. The ground is reported to be of such richness that four men are said to have cleaned up over hand jigs a car load of zinc ore in four and one-half days. The ore occurs in open ground and is so free that hand jigs only are used for cleaning it ready for the market. The ground has been mined for several years, but not until during the past year did it show up such extensive bodies of zinc ore. Both steam and horse hoisters are used and a complete pumping plant is in operation with which the ground is drained and water supplies for cleaning the ore.

BAY STATE MINING COMPANY.

The "Bay State" is a mining company organized and incorporated under the laws of Virginia, with a capitalization of \$100,000 for the purpose of doing a mining business in Southwest Missouri. The principal part of the stock is held by Eastern parties, with H. E. Bothfield of Boston, Mass., secretary and treasurer, and W. H. Johnson of Joplin, Mo., general manager. The company is operating two lots at a royalty of 20 per cent. of the Springer-Page lease at Belleville and has one shaft sunk to the depth of 103 feet with a very rich body of zinc ore developed sixteen feet in thickness. The dirt hoisted runs a high percentage zinc ore and a weekly turn in of about 25 tons is made with three hand jigs in use and ten men employed. A steam hoister is used and water for cleaning purposes is furnished from a 3-inch Gardner steam pump.

Blackberry.

This property is owned by the "Bay State" Company and consists of 14 mining lots of the Granby land just to the northwest of Joplin, at a royalty of 15 per cent. on zinc ore and 20 per cent. on lead ore. The company has four shafts sunk on the lease to an average depth of 137 feet. The shafts are now being lowered for the purpose of reaching the deeper ore which is said to be very rich in both zinc and lead. A very complete and modern concentrating mill has been erected here of 150 tons daily capacity supplied with all the necessary machinery and appliances for successfully handling the ore which occurs in very hard ground. With about 28 men employed, a weekly production of about 25 tons of zinc ore is made besides a good production of lead.

King Fisher.

This is a first lease at a royalty of ten per cent. operated by the "Bay State" Company and consists of 22 acres acquired of the John Jackson estate, and is situated in Chitwood Hollow about two miles to the northwest of Joplin. The company has four shafts sunk to depths ranging from 100 to 171 feet, with zinc ore developed in each of them. This property is new and only partly developed, but is splendidly located with reference to good producing mines and the ground here has shown sufficient ore to warrant the erection of a new 150-ton concentrating plant supplied with a double crusher, sufficient boiler and engine power, and all other necessary machinery and modern appliances for a first-class mill. One 8-inch and one 4-inch steam pump are used for drainage purposes and for furnishing water for general use in the mill. The ground is hard, no timbers being necessary for the support of the drifts and a force of about 28 men is employed.

Pittsburg.

This mine is owned by the "Bay State" Company and is situated about two miles to the northwest of Joplin. It comprises 666x266 feet of the Granby land at a royalty of 15 per cent., with two shafts sunk to the depth of 70 and 170 feet, respectively. Good zinc ore has been developed in the deeper shaft, while the drill showed an excellent body of ore near the 70-foot shaft at the 70-foot level. This property is new and the company expects to erect a concentrating plant when sufficient development is made to warrant the expenditure.

LINCOLN MINING COMPANY.

The Lincoln Mining Company is incorporated under the laws of West Virginia and capitalized at \$100,000; \$50,000 of which is preferred stock; W. H. Johnson of Joplin, Mo., is the president and Walter H. Johnson of Buffalo, N. Y., is secretary and treasurer. The company owns a lease on 70 acres of mineral land (at a 10 per cent. royalty) situated about seven miles to the northwest of Joplin and is owned in fee simple by the McKee heirs. There are three shafts sunk on the lease to the depth of about 100 feet and zinc ore developed in each shaft, but producing from only one, as the ground is new and two of the shafts are not sufficiently opened for steady work. The ore produced from the shaft mentioned is of a high grade, free and occurs in open ground. The lease adjoins the "Three Friends" mining land on the west and is a very promising tract. The improvements consist of one 8-inch lift pump, with which the ground is drained and water

furnished for cleaning purposes, a steam hoister and six hand jig while the production reaches about 25 tons of zinc ore per week.

The Black Hawk.

This mine is owned by the Lincoln Mining Company and is located on the Leonard land about two miles to the northwest of Joplin. They pay a royalty of 20 per cent. and have two shafts down in ore at the depth of 100 feet. This is a new property and a new 100-ton concentrating plant has just been completed and is ready for operation. The company will give employment to about 25 men at this mine.

PERRY LEASES, JOPLIN.

The Perry leases referred to here are situated just to the northeast of Joplin and are owned and operated by John M. Sully. The leases comprise 190 acres belonging in fee simple to the Granby Mining & Smelting Co., the Picher Lead Co. and Wilson & Hutton. There are three pumping stations on the leases and the water level is maintained at the depth of 160 feet on the Granby land, 130 feet on the Picher ground and at 145 feet on the Wilson & Hutton ground. Extensive improvements have been added during the past fiscal year, which consisted of remodeling and enlarging the old mill, one new mill of 100 tons daily capacity and one new mill of 250 tons daily capacity. There are also nine steam hoisters and twenty horse hoisters in use while there are fifteen hand jig plants on the leases. Fifteen shafts have been sunk in which either lead or zinc ore has been developed ranging in depth from 76 to 180 feet, and from these shafts there were produced and sold during the past fiscal year 1,848 4-5 tons of zinc and 1,331,460 pounds of lead ore, valued at \$91,518.38. The following companies are operating on these leases: Victim, J. W. Perry, Good & Co., Fitzgerald & Co., Gaiser & Co., Lone Elm, Pig Foot, Chas. Brown, Lucky Honey, Rose & Miller, Crawley, Goodrich Bros., Holmes & Elvin, Budd & Co., John Pack, Chas. Vinson, Old Shoe, Griffin & Co., B. Ferguson, Whitaker, Brownfield & Co., Rescue Mining Co., Wood & Co., J. J. Thomson, John Baminter, Marsh & Pierce, Moore & Moore, Guinn & Co., Robinson McGraw and Mill No. 1 and 3.

BOSTON-DUENWEG MINING COMPANY.

The Boston-Duenweg Mining Co. is incorporated under the laws of Rhode Island with John Kilburn of Providence, R. I., as president; Henry Duster, secretary and treasurer; Ira Miller of Joplin, Mo., manager, and W. R. Crandall, Duenweg, Mo., superintendent. The com

any owns 155 acres of mineral land in fee simple at Duenweg and is the property formerly known as the Duenweg and the Ground & Irwin lands. The first prospecting and the first developed mines on the Duenweg tract comprising 75 acres were carried through by G. P. Ashcraft of Webb City, Mo., in 1894, who sold it soon thereafter to the Duenweg Mining Co., the present company purchasing the property something over a year ago. Some of the most wonderful mines in the Joplin district have been opened up on this tract, their weekly productions reaching often from 300,000 to 400,000 pounds of zinc ore besides a very heavy turn-in of lead. The ore bodies are encountered at from about 90 to 145 feet below the surface and with some exceptions in very soft ground that requires heavy timbers for the support of the drifts. In some portions of the ground the ore exists in hard ground where timbering is unnecessary if the ground is properly cut. There are now 15 shafts to the average depth of about 135 feet in which the ore has been developed and the company has three complete concentrating mills which it operates, besides a custom mill operated for the benefit of the miners who have no mill. The productions of the company now reach about 200 tons of zinc and about 30,000 pounds of lead ore per week with a force of about 100 men employed. We mention briefly some of the operators below.

News Boy Mining Company.

This company has been one of the most prosperous of the Duenweg camp and is composed of J. L. Bennett, J. C. Carmean, Joshua Bennett, H. U. Dale and P. H. Carmean, who operate three lots of the Boston-Duenweg Mining Co., and have two shafts to the depth of 135 feet in soft ground, which requires heavy timbers for the support of the drifts. The mine has a record of producing about an equal amount of lead and zinc ore and the production has been a most satisfactory and gratifying one to the owners, having yielded in one week, we are informed, 182,000 pounds of lead and 80,000 pounds of zinc ore. The company has a complete concentrating mill supplied with the necessary machinery and appliances for successfully handling the ore.

Sunflower Mining Company.

This company is composed of Eastern gentlemen and operated by W. E. Colley as trustee. They are operating on the Boston-Duenweg Mining Co.'s land. The lots here, like the News Boy, have proven to be very rich in mineral, as the records of former productions will show. The company has a complete mill equipped with all the necessary machinery for preparing the ore for the market.

Baptist Mining Company.

The Baptist Mining Company is composed of C. M. Manker and O. J. Raymond of Webb City, Mo. They are operating one lot of the Boston-Duenweg Mining Co.'s land at a depth of about 135 feet, with very satisfactory results. A steam hoister is used and the ore hauled to the custom mill, where it is cleaned ready for the market.

Keystone Mining Company.

The "Keystone" is composed of W. H. Landreth and others, who operate one lot of the Boston-Duenweg Mining Co.'s land, at a depth of 135 feet in open ground. They use a steam hoister and haul the dirt to the custom mill for treatment.

Dandy Mining Company.

The "Dandy" is composed of Jack Arnold and others, who are operating two lots of the Boston-Duenweg Mining Co.'s ground, and have one shaft sunk to the depth of 135 feet at which level they have a 12-foot face of ore opened up in soft ground. Both lead and zinc ore exists here and the mine appears very promising.

East End Mill.

This mine is operated by the Boston-Duenweg Mining Company, and is one of the best producers of the land. There are four shafts to the depth of 140 feet with large bodies of ore developed. The ore occurs in open ground where heavy timbers are necessary for the support of the drifts. A force of about 70 men is employed here while the production reaches about 80 tons per week of zinc ore. There are pumps of large capacity for drainage purposes installed here and a complete concentrating mill in operation.

West End Mining Company.

This company is operating on the Boston-Duenweg Mining Company's land with a shaft sunk to the depth of 154 feet, with a good face of ore reported opened up. The company has a complete mill equipped with all necessary machinery and appliances for treating the ore which is under the management of Martin Lown of Duenweg, Missouri.

West End Mill.

The Boston-Duenweg Mining Company operates six lots of its own ground at the western portion of the land, and has three shafts sunk to the depth of 140 feet. A very fair face of ore is opened up,

and a production of about 20 tons per week of zinc ore is made. The mill is supplied with the necessary machinery for properly treating the ore.

NEMO MINING COMPANY.

This company is composed of T. C. Molloy, R. B. Cholmondley, Geo. S. Page and Geo. C. Meese of Joplin, Missouri. They control a lease at ten per cent. royalty on 120 acres of mineral land situated about four miles south of Joplin, belonging to Kelley & Schermerhorn. There are 15 shafts sunk on the lease ranging in depth from 60 to 150 feet, the ore occurring in both open and hard ground at an average depth of about 117 feet. It has one 8-inch lift pump in operation with which the ground is drained, two steam hoisters and six hand jigs. The business of the company is in the hands of G. C. Meese who charges a royalty to operators on the land of 20 per cent.

PLYMOUTH ROCK MINING COMPANY.

The business of the Plymouth Rock Mining Company is in the hands of Edwin F. Dexter, and is incorporated under the laws of Rhode Island with a capitalization of \$50,000. The company controls 20 lots of the Beacon Lead and Zinc Company's lease at a royalty of 20 per cent., situated about two miles east of Joplin, and has three shafts sunk to 90, 118, 128 feet respectively. The ground is open and requires timbers for the support of the drifts. Faces of free zinc ore from 10 to 12 feet high have been developed, and appear very promising. There are three steam hoisters and one horse hoister in use, and a complete concentrating mill has just been completed ready for operation. The company has an office and scales in place, and employs 18 men.

O. M. & R. MINING COMPANY.

The mining operations of this company are managed by H. Mapes of Carthage, Missouri, who operates four lots of the Regan land situated about three miles to the northeast of Joplin. There are two shafts sunk to the depth of 133 and 164 feet, and a ten-foot face of ore is being mined at the levels of 85 and 133 feet. A small mill is in operation, and six men are employed. The ore occurs in hard ground that does not require the use of timbers for its support if properly mined.

BELL MINING COMPANY.

This mining property belongs to Bittick, Foresman & Company, and comprises three lots (of the Dividend lease, situated about three

miles northeast of Joplin) at a royalty of 20 per cent. They have one shaft down to 110 feet and are developing a very good run of zinc ore. Their improvements consist of one pump and a horse hoister.

SCOTCH MINING COMPANY.

This company is incorporated under the Missouri laws, and capitalized at \$100,000 with L. B. Ely of St. Louis, president, Thos. H. Maston, Jr., treasurer and John M. Malang of Joplin, general manager. The company owns a lease at 15 per cent. royalty on 13 acres of the Roaring Springs Mining Company's land, situated about three miles to the southwest of Joplin. They have developed zinc ore in six shafts ranging in depth from 75 to 110 feet, the ore faces ranging from ten to fifteen feet high and from thirty to eighty feet wide in open ground that requires the use of timbers for the support of the drifts. The company has an up-to-date concentrating plant complete in all its parts, supplied with one 100 horse power boiler, a 65 horse power engine, a 14-inch crusher, steam jigs with a 5-cell rougher and a 6-cell cleaner, three sets of rolls, screen, five elevators and five steam hoisters. The company has also a pumping station located at a spring 2,500 feet away from which water is forced through a two-inch pipe to the plant for general milling purposes. This tract is well located with reference to other good producing mines, and has a very promising future.

PEAL LEAD AND ZINC COMPANY.

The Peal Lead and Zinc Company is incorporated under the laws of Missouri and capitalized at \$25,000 with W. W. Calhoun, of Carthage, Missouri, president, J. F. Harrison, secretary and treasurer, and Rudolph Finke manager. The company controls six lots of the Continental ground just to the west of Joplin, and has three shafts sunk 145, 170 and 190 feet respectively: All of which have developed rich ore at various levels from 120 feet down. The present working levels are at the depth of 145 feet in medium hard ground and the ore drifts are cut about 12 by 12 feet. The company employs about 14 men, and the weekly production reaches about 20 tons of zinc ore. A complete concentrating mill has been erected on the lease of 100 tons daily capacity supplied with all the machinery necessary for handling the ore. One steam hoister and one 3-inch Gardner pump are used.

DEAD MULE MINING COMPANY.

This company is composed of Rudolph Finke, Mr. Cosgrove, Mr. Boyd, C. B. Gammon, Wm. Feltwisch and F. H. Herp. They control

three lots of the Continental ground west of Joplin, and have one shaft 145, and one shaft to the depth of 190 feet, with ore developed in both. The ground here carries both lead and zinc ores in apparently large quantities in hard ground. They use a steam hoister and two 2-inch steam pumps.

GROUND, FINKE & COMPANY.

This company's property adjoins the Dead Mule and consists of two lots of the Continental ground with one shaft to 152 and one to the depth of 165 feet. This is a new mining property, but bodies of ore have been developed at different levels and looks well.

GUMBO RUN MINING COMPANY.

This property consists of two lots of the McGibben land situated two miles to the east of Joplin, and is owned by Rudolph Finke, W. S. Crane, Joe Dillon and Chas. Conn. Their two shafts are 96 and 123 feet in depth respectively with very rich bodies of free zinc ore developed in each shaft in open ground that requires timbering for the support of the drifts. It is claimed that a face of ore exists here at least 40 feet high and 186 feet wide, and that the ore continues in the sides and bottom of the drifts, and that an eight foot run of lead ore exists on top of the zinc run. The improvements consist of a steam hoister, three hand jigs and one Snow pump. There are twelve men employed and a weekly production of about 20 tons of zinc ore is made.

KEYSTONE LEAD AND ZINC COMPANY.

The Keystone Lead and Zinc Company is incorporated under the laws of Missouri and capitalized at \$5,000 with E. Mc C. Davis of New York, president, Daniel O'Gara, secretary and treasurer, and F. C. McCown of Joplin, Missouri, manager. The company owns a lease on 40 acres of mineral land situated at Spring City, about seven miles south of Joplin at a royalty of 10 per cent. on all minerals mined. There are three shafts sunk ranging in depth from 100 to 155 feet with ore developed in each, besides four drill holes that showed ore and one of which penetrated an ore body from 132 to 197 feet. The ground is generally hard and requires milling facilities to handle it. This company has four lots sub-leased to the Quaker City Mining Company, which has one shaft sunk to the depth of 107 feet with a very good face of ore opened up. The mine was operated only a small portion of the year, but turned in 210

tons of zinc and 215,000 pounds of lead ore. The improvements here consist of a crusher plant, steam hoister, three hand jigs, one Snow pump and steam drills for breaking the ground.

HUTCHINSON MINING COMPANY (Lessees).

The "Hutchinson Mining Company" controls a lease on eighty acres of mineral land situated about three miles to the southwest of Joplin and owned in fee simple by Green B. Young of Joplin, Missouri. The developments on this property are new and only two shafts have been put down. These shafts, however, developed sufficient amount of ore to warrant the company erecting a complete concentrating plant at a cost of about \$8,000, equipped with all the necessary machinery and appliances for successfully handling the ore. There is a steam hoister, steam pump and four hand jigs on the land in addition to the mill. The work has not been pushed and the output so far has been light.

EASTERN STAR MINING COMPANY.

The "Eastern Star Mining" Company is operating the old West Virginia ground containing ten acres situated about one mile south of Carterville, and has one shaft producing ore at the depth of 200 feet. The ore occurs in hard flint ground that does not require the use of timbers for the support of the drifts when properly mined. This land is well located with reference to good producing mines, and carries both lead and zinc ore, but during the past year very little progress has been made toward its development. Byron Ash of Carthage, Missouri, is the present manager and better results are expected in the future. There is one complete concentrating plant on the land supplied with the machinery necessary for successful mining.

THREE FRIENDS ZINC MINING COMPANY.

The Three Friends Zinc Mining Company is incorporated under the laws of Missouri with a capitalization of \$350,000, and officered with D. J. Tansig, of St. Louis, Missouri, as president, and Thos. H. Fisher, of Carl Junction as manager. The company controls 320 acres of mineral land—160 acres under lease and 160 acres in fee simple. The present mining operations are confined to the leased property. There are three concentrating plants on the lease: one operated by the Three Friends Company, and the other two by companies operating under sub-leases. In addition to the three steam plants, there are three hand jig plants in operation. The Three

Friends Company's mill has a daily capacity of 200 tons, and was erected during the months of February and March of the past fiscal year, and has been in steady operation since that time. The mill is of special design and built especially for the treatment of free milling ore. It was designed by Thos. H. Fisher, the present manager, was built under his supervision by day work, and is therefore put up in a very substantial manner, and is giving perfect satisfaction. The rough ore is conveyed on cars (holding two tons) by tramway from the mines to the mill and the arrangement is such that by a switch or spur it can be brought from any shaft on the lease. The production of concentrates from the mill varies from 60 to 100 tons per week. Lot 42 Mining Company is operating under a sub-lease and has control of four lots. They possess a complete concentrating mill of 100 tons daily capacity, and make a weekly production of from 40 to 50 tons of zinc ore. The Florence G. Mining Company has a sub-lease on four lots and has also a complete concentrating plant. Their weekly production of zinc ore is reported to be from 50 to 60 tons. The Knox All Mining Company has a sub-lease on two lots and operate a hand jig plant. Their production reaches from 8 to 15 tons per week of zinc ore. Lot 36 Mining Company operates two lots and has been producing from 12 to 16 tons of zinc ore per week on hand jigs. Chas. H. Morgan & Company have a sub-lease on four lots and have been sinking two shafts on their property.

The ore produced from the Three Friends Zinc Mining Company's property is of the best quality, the ore assaying from 63 to 64 per cent. metallic zinc and is free from iron which makes the ore very valuable and is always in demand at the highest market price. The ore deposits are found at an average depth of 120 feet. This mining property is located about seven miles to the northwest of Joplin, and about two miles west of Carl Junction which gives the company the advantage of the Frisco railroad for transportation. Very substantial improvements have been made in the property since this company took charge with most satisfactory results.

ARKANSAS MINING COMPANY.

This company is composed of R. S. Moris of Siloam Springs Arkansas and C. W. Newland of Zincite, Missouri, with Oscar Miles as superintendent. Their lease covers forty acres of mineral land owned in fee simple by W. A. Campbell of Joplin, Missouri, and W. C. Freeman of Providence, R. I. A pumping station is maintained by this company with which the land is drained, and one concentrating plant operated. The ore occurs at about the 165-foot level, and is known to

be in great quantity and of a high grade. The lease is situated near Zincite about five miles northwest of Joplin and has the advantage of the Memphis railroad for transportation, this line of railway being about one mile distant. It is on this lease that the famous "Eagle" mine is located, a mine that bears the distinction of producing the highest grade zinc ore to be found in the Joplin district. Mention follows of some of the operators on the Arkansas lease.

EAGLE MINING COMPANY.

The Eagle Mining Company is composed of John Newlin, J. F., H. D. and A. A. Newlin, W. T. Freeman and Geo. Featherstone, with the first named gentleman as manager. They operate three lots of the Arkansas lease at a royalty of 20 per cent. and have one shaft sunk to the depth of 172 feet from which thousands of tons of the highest grade zinc ore to be found in the Joplin district have been hoisted. The ore is encountered in open ground at the 124 foot level and continues to the bottom of the shaft, making an exceptional body of zinc ore. The mine is operated very regularly throughout the year with large weekly productions of zinc ore which is sold for the very highest price paid for any ore in the Joplin district. The high grade zinc ore produced here in such regularity has made the "Eagle" famous. The company has a complete concentrating plant supplied with all the necessary machinery and appliances for reducing the ore ready for the market.

NORTH STAR MINING COMPANY.

The "Star" mine is the property of St. Joseph, Missouri parties and is under the management of Mr. Henshaw of Zincite, Missouri. This company has been operating at about the 135-foot level on lots of the Arkansas Mining Company's lease with about twenty feet of ore developed. They have a mill of about 60 tons daily capacity in operation and make fair productions of zinc ore.

OWL MINE.

This property is owned by Joplin parties and consists of two lots of the "Arkansas" lease. These lots adjoin the "Eagle" mine on the north, and the ore is developed at about the same level, 170 feet. Like the "Eagle" their ore is of a high grade and occurs in fair quantities. A steam hoist and hand jigs are used.

LEAD HILL MINING COMPANY.

This company is composed of Dr. Z. L. Kay, W. R. and W. A. Hacker, E. O. Bartlett and G. C. Harris, all of Joplin, Missouri, with

Mr. Kay as the company's secretary. They own a first lease on forty acres of mineral land belonging to Dan Collins and others of Joplin, and pay a royalty of ten per cent. on all minerals mined. The lease is situated in the Belleville district about five miles to the northwest of Joplin and adjoins the Arkansas Mining Company's lease on the east. There are five shafts sunk on the lease to an average depth of 140 feet in which good bodies of zinc ore have been developed in open ground that requires some timbering for the support of the drifts. The ground is new but sufficient development work has been done to prove the ore bodies to be from 30 to 40 feet in thickness. While considerable ore has been developed, there is but one concentrating mill on the land, but it is new and recently put into operation. We mention this company below.

THE PERKINS MINING COMPANY.

This company is incorporated under the laws of Maine with D. B. Perkins of Providence, R. I., president, R. P. Brown, secretary and treasurer, F. A. Balou, vice-president, and R. W. Church of Zincite, Missouri, superintendent. The company owns a sub-lease at 20 per cent. on seven acres of the Lead Hill Mining Company's lease and has three shafts sunk ranging in depth from 150 to 170 feet with zinc ore of a high grade developed in each shaft. The ground is new yet very promising as is shown by the drift opened up which is 20 feet wide and 40 feet high, and which runs about 15 per cent. cleaned ore. A new and very complete concentrating mill has just been completed and put into operation of about 100 tons daily capacity at a cost of \$8,000. This mill is equipped with a 100 horse power boiler, a 75 horse power engine, one large crusher, a 5-cell rougher and a 7-cell cleaner, steam jigs, screens, elevators, etc., and one steam and one 8-inch lift pumps are used for drainage purposes and for supplying the mill with water for general milling use.

HAGADORN & ROSE.

This company is composed of R. Hagadorn and W. M. Rose of Zincite, Missouri. They own a first lease on 30 acres of the land belonging to the Lewellen heirs (at a royalty of 10 per cent.) situated about four miles west of Joplin. There are 20 shafts sunk on the lease ranging in depth from 80 to 120 feet, with ore developed in 15 shafts. The ground carries both lead and zinc ores, and they are encountered at various levels from 40 to 120 feet, which is the deepest the ground has yet been tested. The ore occurs in open

ground that requires some timbering for the support of the drifts which are usually cut about 12 feet wide and about 16 feet high. The ore appears to be very general throughout the ground as is proven by its occurrence in so many shafts that are now producing and are sufficiently opened up for profitable mining. The lease is said to produce about 50 tons of zinc ore and from 15,000 to 20,000 pounds of lead ore per week, and there are about 50 men who get employment on the land. There are three mills operated or about ready for active work. Operators each pay a royalty of 20 per cent. on zinc ore and 25 per cent. on lead ore. Some of these companies are mentioned below.

ETHEL A. This company is composed of Cunningham, Earl and others who operate three lots of the "Hagadorn" lease and have two shafts sunk to a depth of 116 feet with ore developed in each. They have a concentrating plant, steam hoister, etc., and make fair productions.

McCONEY & CO. have one lot of the "Hagadorn" ground with one shaft to the depth of 116 feet. The company has a nine foot face of ore developed.

RICE & SUMMERFIELD have four lots of the "Hagadorn," with two shafts sunk to the depth of 116 and 120 feet, respectively. They have developed a good body of ore and have a steam hoister in use.

THE GROUND HOG. This company is composed of Reed, Bennett & Co., of Carthage, Missouri. They control one lot of the "Hagadorn," and have one shaft down to the depth of 116 feet with fair ore developed. They use a horse hoister and haul the ore to a custom crusher where it is reduced ready for the market.

CHAS. EARL has two lots of the "Hagadorn" lease, with one shaft to the depth of 100 feet in which good zinc ore has been developed. The dirt is hoisted by horse power and cleaned over hand jigs.

CLOVER LEAF. This company is composed of Chadwick, McIntosh & Godwin of Carl Junction, Missouri. They have four lots of the "Hagadorn," with two shafts sunk to the depth of 100 feet in which they have developed a good face of zinc ore. They have a 40-ton mill and make satisfactory productions.

R. HAGADORN has three lots of the "Hagadorn" lease with three shafts ranging in depth from 64 to 100 feet. He has developed rich lead and zinc ore, and will soon have a mill in operation on the lots. At present he has three hoisters and one hand jig.

JONES & CHAPEN control three lots of the "Hagadorn" land and have two shafts sunk to the depth of 94 feet at which level good deposits of zinc ore have been developed. They have a belt hoister, pump and three hand jigs, and make very satisfactory productions.

BUNKER HILL. This company is composed of McClumpher, Whitney and Hudson who operate three lots of the "Hagadorn" lease. They have two shafts sunk to the depth of 110 feet in which they have developed good bodies of zinc ore. A steam hoister and three hand jigs are used.

HOLLINSWORTH & COMPANY operate one lot of the "Hagadorn" land and have one shaft sunk to the depth of 100 feet in which fair zinc ore has been developed. They use a horse hoister and one hand jig.

R. HAGADORN.

R. Hagadorn owns a first lease of 20 acres of the Lewellen land at a royalty of 10 per cent. The lease adjoins the Hagadorn & Rose lease on the north, and is situated about four miles northwest of Joplin. A sub-leasing business is principally done here, and a royalty of 20 per cent. on zinc and 25 per cent. on lead ore is charged. There are four shafts sunk on the land ranging in depth from 50 to 116 feet, but only two have developed the ore. In one of these shafts, zinc ore has been developed at the 80-foot level, while in the other it is encountered at the 110-foot level. The ground is medium, some timbering being necessary, and carries both lead and zinc ore. There are three hand jigs and one steam hoister in use. This ground is new but promising.

SHORT CREEK MINING COMPANY.

This company is composed of P. H. Leddy and Schmidt Bros. of Joplin, Missouri, who operate a lease covering seventy acres of mineral land situated near Central City and about five miles west of Joplin. The lease is fairly productive and during the past fiscal year there were mined and sold ore to the value of \$14,426. The improvements on the lease consist of two complete concentrating mills, five steam pumps, five steam hoisters, six horse hoists and ten hand jigs, and there are seven shafts ranging in depth from 30 to 100 feet.

BEACON LEASE.

The Beacon lease covers forty acres situated about two miles east of Joplin and is under the management of H. E. Robinson of

Maryville, Missouri. The present operators on the lease are the Plymouth Rock Mining Company and John R. Holmes of Joplin, Missouri, and there are four other shafts in which ore has been developed. There is one complete concentrating mill on the lease which is owned by the "Plymouth Rock," besides there are four hand jig plants, three steam hoists and two horse hoists. The value of the production for the past fiscal year was \$12,723, the ore being mined at about the depth of 100 feet.

STUCKEY MINING COMPANY.

The Stuckey lease is situated at Belleville and is owned by Cal and S. A. Stuckey, while the land operated covers 72 acres and is owned in fee simple by J. S. Wright of Belleville. The lessees do only a leasing business and pay a royalty to the land-owner of eight per cent. while a charge of 20 per cent. is made to the operators on the land. There have been some twenty shafts sunk on the land from about 40 to 80 feet in depth, a number of which developed ore. Zinc ore has also been penetrated by drill at the depth of 140 feet. Two concentrating mills have been erected on the lease which were operated a portion of the past fiscal year.

WEBSTER REALTY COMPANY.

This company is composed of E. Webster of Joplin, Missouri, and W. T. Wood, of Noel, Missouri. They control a lease on forty acres of mineral land situated near Central City and about four miles west of Joplin on which they pay a royalty of $12\frac{1}{2}$ per cent. on all minerals mined. There are a number of shafts sunk on the lease, but only one has produced ore during the past fiscal year, this shaft being 120 feet in depth. The ground is not very well developed, but it carries both lead and zinc ore. The improvements consist of a concentrating mill, one lift pump and one belt hoister.

HOLDEN BROTHERS.

Holden Bros. own a lease on thirty-nine acres of mineral land situated about two miles to the north of Belleville on which there have been six shafts sunk to an average depth of 100 feet with ore developed in each shaft, and during the past fiscal year there were mined and sold ore to the value of \$24,467.06. Their improvements at the present time consist of one complete concentrating mill, four hand jig plants, three lift pumps, and one steam pump, one steam
1 one belt hoister and four horse hoisters.

ISHPHENING MINING COMPANY.

The Ishphening Mining Company is operating on 400 acres of mineral land situated about one mile to the south of Carl Junction, and has two shafts sunk to the depth of 150 feet. The property is comparatively new, and has the appearance of becoming valuable mineral land. The company's mining improvements consist of two complete concentrating plants, one hand jig plant, seven steam pumps, two air compressors and six steam hoists. Ore was produced during the past fiscal year to the value of \$10,435.43. Besides the Ishphening Company, the Katy Mining Company and Shackleford & Company are operating on the land.

COLONIAL LEAD AND ZINC COMPANY.

This company is operating a tract of mineral land comprising 192 acres situated near Belleville, and has one shaft sunk to the depth of 150 feet in which ore has been developed, and during the past fiscal year there was produced ore to the value of \$15,527.46. The mining improvements consist of one complete concentrating mill, one hand jig plant, two steam pumps and two steam hoisters.

CHICAGO-LEHIGH MINING COMPANY.

The Chicago-Lehigh Mining Company owns a tract of mineral land comprising 200 acres situated about one mile to the southwest of Carl Junction, on which there are fifteen shafts sunk to an average depth of 80 feet in which ore has been developed and from which there was produced during the past fiscal year zinc ore to the value of \$47,032.45. There is one complete steam concentrating plant in operation on the land, fifteen hand jig plants, eight steam pumps, eleven steam hoisters and four horse hoisters. Following are the operators on the Chicago-Lehigh Company's ground: D. Hinson & Co., Gore & Co., C. E. Miller, Victor Mining Co., Hull & Co., Dunham & Co., Murray & Co., Wilgus & Co., G. W. Layne & Co., Robertson, Chitwood & Co., Crays & Co., Childs & Jacobs, Elliott & Co., J. B. Howell & Co., Cox & Co., Jubilee Mining Co., Lee & Co., H. W. Gerke & Co., D. G. Evans & Co., Hazel Mining Co. and Kate Thorne.

BARBEE & YALE.

The lease owned by Gilbert Barbee and Frank L. Yale of Joplin, Missouri, covers forty acres of mineral land situated about one w

to the north of Joplin that is owned in fee simple by W. H. Phelps of Carthage, Missouri. There are two shafts sunk on the lease, one to the depth of 100 and the other to the depth of 130 feet in which zinc ore has been developed. The mining improvements on the lease at the present time consist of one complete concentrating mill, one hand jig plant, six steam pumps and four steam hoisters.

BOSTON-SPRINGFIELD MINING COMPANY.

The Boston-Springfield Mining Company owns 320 acres of mineral land situated about four miles to the southwest of Joplin, which was purchased about one year ago of the Roaring Spring Mining Company. The company is incorporated with a capital stock of \$500,000 which is held principally by eastern parties. This tract of mineral land is proving to be very valuable for mineral purposes as is shown by the substantial mining improvements on the land, and the ore productions. There are now six complete concentrating plants, seven hand jig plants, fourteen steam hoists, six horse hoists besides the pumps in operation on the land. There are thirteen shafts sunk on the land ranging in depth from 60 to 90 feet in which ore has been developed. The following are operating on the land:

Everett Zinc and Lead Company, Monitor Lead and Zinc Co., Viola Mining Co., Bates & Hawkins, Youngblood & Co., Fairmont Mining Co., Connor & Gaines, McDougal & Co., Dickey & Prickett, Sumner & Co., Hickok & Co., Kirsh & Co., Savage & Co., Temple & Chatman, Eddington Mining Co. and the Scotch Lead and Zinc.

THE EUREKA MINING COMPANY.

This company is composed of S. J. O'Neill of Galena, Kansas, G. W. Wheatly, H. Corning, and J. W. Wampler, with Mr. O'Neill as manager. Their lease covers nine lots of mineral land owned in fee simple by W. E. Brinkerhoff and Jos Herran of Carthage, Missouri. There are six shafts sunk on the lease to an average depth of 120 feet in which ore has been developed and during the past fiscal year there were mined and sold ore to the value of \$11,478.21. The improvements consist of one complete concentrating mill supplied with the necessary machinery, etc., for treating the ore, one hand jig plant and two steam hoists.

RANABARGER MINING COMPANY.

This company is composed of Arthur Ranabarger, H. B. Coleman and R. B. Taliaferro, of Kansas City, Missouri. They control it at a ten per cent. royalty, thirty acres of mineral land

situated about one mile northeast of Central City, and owned in fee simple by the Metropolitan National Bank of Kansas City. There are seven shafts sunk on the lease ranging in depth from 25 to 150 feet, but only producing from one shaft as the others are not of sufficient depth. Five drill holes penetrated ore bodies and shafts are being sunk to develop same. The weekly production here runs about 10 tons of zinc and from 10,000 to 25,000 pounds of lead ore with fifteen men employed. The company sub-leases lots at 20 per cent. on zinc and 25 per cent. on lead ore. The improvements at this time consist of one 8-inch lift pump, one steam hoist and five hand jigs. Arthur Ranabarger is manager.

BUFFALO LEAD AND ZINC COMPANY.

The Buffalo Lead and Zinc Company is incorporated under the laws of Missouri and capitalized at \$100,000, \$5,000 preferred and \$50,000 common stock, with Andrew Demary of Buffalo, N. Y., president, John R. Heintz, secretary and tearsurer, and W. W. White of Joplin, Missouri, vice-president and manager. The company owns a lease at 10 per cent. royalty on forty acres of mineral land belonging to Chas. Schiffendecker of Joplin, Missouri, and situated about one mile northeast of Central City. There are three shafts sunk ranging in depth from 54 to 124 feet, in two of which ore has been developed in fair quantities. The company's improvements consist of one crusher plant, one steam hoist, five hand jigs and one 9-inch Cook steam pump.

WEBB CITY AND CARTERVILLE DISTRICT.

THE CENTER CREEK MINING COMPANY.

The Center Creek Mining Company owns in fee simple 200 acres of mineral land situated at Webb City, the land being located between the cities of Webb City and Carterville, and 10 acres within the southern limits of Webb City, known as the "Quick Work." The company is incorporated for \$1,000,000, with J. C. Stewart of Webb City, Missouri, president and general manager, F. M. Hammett of St. Louis, Missouri, vice-president and W. C. Stewart, secretary and treasurer, and is one of the most prominent mining companies to be found in the mineral belt of Southwest Missouri. The property is well known throughout the country as being an excellent pro-

ducer of both zinc and lead ores, having been operated continuously since 1876, and during which time there have been mined and sold more than five and one half millions of dollars worth of ore. On account of the ground being drained no deeper, the mining has been confined to the levels above 150 feet. The richest ore, however, appears to exist below the 150 feet level, but owing to a desire on the part of the company to have the upper levels mined first, no attempt has ever been made to sink the pump shafts deeper for the purpose of deeper drainage until very recently. The ore veins are very extensive and exist near the surface at many points as well as at depths far below. In connection with the fee, the company owns two complete concentrating plants, which are used principally as custom mills for those operating on the land who have no mills. In all there are 17 complete concentrating plants on the land of about 100 tons daily capacity each, either completed and ready for operation or about completed and ready for active work. A majority of these mills have been erected during the past year, and during the erection of each, no mineral of any consequence was produced from this particular ground, but when all these mills are in active operation, the production should be enormous. All the operators on the land beginning January 1, 1900, pay a royalty of 25 per cent. on zinc ore, and about 50 per cent. on lead ore produced from the ground to the Center Creek Company for a period of five years. Less than one-half of the land is developed and leased in this way, leaving more than 100 acres for the company to lease or operate themselves should they desire to do so. The property has been a large and steady producer for so many years that its solidity or rank among the foremost producers cannot be questioned. The ore occurs mostly in flint ground and has been shown to be as much as eighty feet in thickness. There are between forty and fifty shafts on the land which have developed the ore, and located as it is, immediately between the cities of Webb City and Cartersville, it is very convenient for operators and miners as well. The property has also the advantage of the Missouri Pacific and Memphis railroads for transportation as these two lines of railway pass over the land. Below we mention some of the operators on the Center Creek Company's ground.

Smith & Holcomb.

This company is composed of B. Smith and Jas. Holcomb of Webb City, Missouri. They have been mining on the Center Creek Company's ground since 1892, and operate of this land, lots 42, 81, 87 and 88. Their principal work has been done from the shaft on

lot 42 at about the 120-foot level, but the ore was encountered at about 75 feet below the surface. The drifts have been cut in medium hard ground ranging in length from 200 to 260 feet and usually about 40 feet high and about the same in width. The ground has been mined almost continuously for the eight years and from present appearances a great deal of profitable mining will yet be done, as in other parts of the Center Creek ground, a lower run of ore appears to exist here. The improvements consist of a concentrating mill supplied with sufficient steam power, machinery, pumps and all necessary appliances for reducing the ore. The regular royalty of 25 per cent. on zinc and 50 per cent on lead ore is paid.

Smith, Arter & Company.

This company is composed of B. Smith and Jas. Holcomb of Webb City, Missouri, and Dr. A. H. Arter of Galena, Kansas. They control five mining lots of the Center Creek ground, and have five shafts sunk in which ore has been developed ranging in depth from 60 to 148 feet. Their upper run of ore is encountered at from 60 to 90 feet below the surface, while the second run is developed at from 105 to 148 feet, and three of these shafts have been sunk to sufficient depths to reach the lower ore. There are five drifts cut from the hoisting shaft showing faces of zinc ore from 12 to 50 feet high of sufficient richness to pay a good profit for handling. This company has erected here a new 120-ton concentrating plant during the past year with double crusher and all other machinery and appliances necessary for an up-to-date and modern mill including a 7-inch steam pump which furnishes water for milling purposes. With a force of about twenty men employed, a weekly production of from 20 to 25 tons of zinc ore is made.

Coyne & Dermott.

This company is operating on the Center Creek ground at Webb City and is composed of John Dermott and Thomas Coyne. They have three shafts in which large bodies of zinc and lead ore have been developed, ranging in depth from 110 to about 140 feet. The ore deposits appear extensive as a forty-foot face is worked in a number of the drifts. They employ about 20 men and average a weekly turn-in of about 50,000 pounds of zinc ore besides considerable lead. They pay the Center Creek Company a royalty of 25 per cent. on zinc ore and 50 per cent. on lead ore. They have a well constructed and up-to-date concentrating mill of about 100 tons daily capacity, *supplied with all the necessary machinery and appliances for suc-*

cessfully handling the ore. Everything about the mine is well arranged for economy of space and power, and has every appearance of excellent management.

The Beasley Mine.

Our report of the Webb City and Carterville districts and of the Center Mining Company's ground especially, would not be complete without a mention of the Beasley mine, which is operated by Mrs. Nancy I. Beaseley, of Carterville, Missouri. This mine is one of the oldest that is being operated on the Center Creek ground, operations having been begun in 1877 and the mine worked almost continuously since that time. It has been a most remarkable producer of zinc ore, and it is probable that no mine in the district has so great a record for almost continuous productions for so long a period. Three mining lots 200 feet square have been operated by Mrs. Beaseley and during the time mentioned above, considerably more than a half million dollars' worth of ore has been mined and sold, and there still remains, apparently, great quantities of zinc ore. The mine probably contains the largest drift to be found in the district, it being about 100 feet wide, approximately seventy feet high and over 200 feet long in circular form without any timbers for its support. This great space is held in tact by a solid limestone cap rock which, like the drift, is remarkable for its great thickness, width and length. There are three shafts sunk on the three lots to a depth of about 135 to 150 feet, all of which have been worked to about the water level with fair faces of zinc ore existing, there being but little lead ore mined. The regular royalty of 25 per cent on zinc ore and about 50 per cent. on lead ore is paid the Center Creek Company. There are two complete concentrating mills on the lease supplied with the necessary machinery and appliances for treating the ore, one of which has been erected during the past fiscal year. These mines are under the management of Green W. Beasley, of Carterville.

DELLA S. MINING COMPANY.

The Della S. Mining Company is composed of Col. Patten and Henry Johns of Carthage, Missouri, Mr. Stein of Muncie, Indiana, and Mr. Beach of St. Louis, Missouri. The company controls a lease on 70 acres of mineral land at 10 per cent. royalty belonging to Elliott & Zimmerman, and situated just to the south of Webb City. Only a leasing business is done by the company, and a charge of 20 per cent. royalty is made to the sub-lessees.

HURD MINE. J. D. Hurd of Carthage, Missouri, has a sub-lease on 10 mining lots of the Della S., and has three shafts sunk to a depth of 170, 180 and 232 feet respectively, all of which have developed good bodies of zinc ore. Mining has been done principally in the soft ground that requires timbers for the support of the drifts, but immediately below this face of ore the sheet formation begins, and 27 feet of high grade zinc ore has been demonstrated in this ground which will be mined when the upper runs are exhausted. The company employs fifteen men and makes a weekly production of about 20 tons. The improvements here consist of a complete concentrating plant equipped with all necessary appliances for handling the ore, and two steam hoisters.

HENRY JOHNS. This property consists of five lots of the Della S. lease, and is owned by Henry Johns of Carthage, Missouri. He has one shaft 170 and one 185 feet in depth in which zinc ore has been developed and is now erecting a concentrating plant.

OLD CONTINENTAL MING COMPANY. This company is operating three lots of the Della S. lease from a shaft located very close to their line on adjoining lot with very satisfactory results.

OXFORD MINING COMPANY. This company operates two lots of the Della S. lease with a good body of ore developed. The production from this mine reaches about 50,000 pounds of zinc ore per week, which occurs in hard sheet ground. They have a very complete mill, and are putting in an air compressor with which the ground can be more easily broken.

ELK LEAD AND ZINC COMPANY.

The Elk Lead and Zinc Company is incorporated under the laws of Missouri and capitalized at \$75,000, with W. E. Haymond of Sutton, West Va., president, J. P. Stewart of Webb City, Missouri, secretary and treasurer, and John E. Dougher of Webb City as manager. The company controls by lease at a royalty of 10 per cent. 160 acres of the Elliott & Zimmerman and Hough lands, situated just to the south of Webb City, on which there are ten shafts sunk to an average depth of 190 feet, all of which have developed fair bodies of zinc ore. The ground also carries lead ore, but zinc is the principal ore mined. The ore faces are from nine to twelve feet in thickness and occur in hard ground of the sheet formation. The production of ore here reaches about 40 tons of zinc and about 10,000 pounds of lead ore per week. The company maintains a pumping station equipped with one 12-inch *Snow steam pump*, a nine and a six-inch *Dean pump*, with

which the ground is easily drained. There is also a complete concentrating plant erected in connection with the pumping station. Mention follows of some of the operators on the "Elk."

Usona Mining Company.

The president of the "Usona" is W. F. Wilcox of Kansas City, Missouri, while the management is in the hands of E. Eaton of Joplin, Missouri. Their lease covers eight mining lots of the "Elk" lease at a royalty of $22\frac{1}{2}$ per cent. on zinc and $33\frac{1}{2}$ per cent. lead ore mined, and they have two shafts sunk to the depth of 180 feet in which fair ore has been developed. They have a complete concentrating mill in operation and make very satisfactory weekly productions.

Tulare Zinc Company.

The Tulare Zinc Company is incorporated under the laws of West Va., with a capitalization of \$150,000. The officers of this company are Hon. James R. Waddill of Webb City, Mo., president, Mr. Clemmings of Springfield, Mo., secretary and treasurer, while the general management of the company's business is in the hands of E. E. Adams. The lease of this company covers six mining lots of the "Elk" lease at a royalty of $22\frac{1}{2}$ per cent. on zinc and 33 1-3 per cent. on lead ore produced. They have two shafts sunk to a depth of 190 feet, at which level a most excellent deposit of zinc ore has been developed in hard ground of the sheet formation. The productions here reach from 25 to 30 tons of zinc ore per week, with a force of about 23 men employed. They have in operation a very complete and up to date concentrating mill, equipped with all the necessary machinery and appliances for successfully handling the ore. In connection with this mill, a four-drill air compressor has been installed with which the ground is broken.

Sure Shot Mining Company.

This company is composed of D. A. Bailey and others of Webb City, Mo., who operate two lots of the "Elk" lease at a royalty of $22\frac{1}{2}$ per cent. on zinc and $33\frac{1}{2}$ on lead ore. They have one shaft down to the depth of 180 feet with a very fair face of ore developed. The dirt from this mine is hauled to the Usona mill for treatment.

Relay Mining Company.

The Relay Mining Co. is incorporated under the laws of Missouri and capitalized at \$25,000 with W. F. Morrison of Sutton, West Va., president; W. E. Haymand, secretary and treasurer; and John

E. Dougher as manager. Their lease covers five mining lots of the "Elk" lease at the regular royalty of $22\frac{1}{2}$ per cent. on zinc and $33\frac{1}{3}$ per cent. on lead ores. There are two shafts sunk to the depth of 180 feet, both of which have developed good bodies of zinc ore in hard ground of the sheet formation. At the present time their improvements consist of a steam hoister and four hand jigs; they are to erect a new concentrating plant in the near future.

Fernana Mining Company.

The "Fernana" is composed of Jos. Lewis and others of Webb City, Mo., who operate one mining lot of the "Elk" lease, and have one shaft sunk to the depth of 180 feet, but are working a lead run at the 110-foot level. Their improvements consist of a horse hoister and two hand jigs.

PORTO RICO MINING COMPANY.

The "Porto Rico" is the property of Josh Shafer and others of Prosperity, Mo. They have a lease on a tract of mineral land containing forty acres situated about two miles to the southeast of Prosperity. This is comparatively new mining land, but the indications point to large and profitable future productions. There are two shafts sunk, one to the depth of 80 and the other to 120 feet, both of which have developed ore. The improvements on the lease at the present time consist of three steam pumps, one steam hoister, eight horse hoisters and two hand jig plants. This property adjoins the "Lucky Tom," which opened up most excellent bodies of both lead and zinc ores.

MASSACHUSETTS LEAD AND ZINC COMPANY.

This company is located about four and one-half miles to the northwest of Carthage, and has a lease covering forty acres of mineral land. There are two shafts sunk on the lease to 100 and 110 feet respectively with zinc ore developed in each shaft, but only one shaft is being operated. The improvements of the company consist of a complete concentrating mill, two steam pumps, two steam hoisters and one horse hoist. This tract is new in point of mining, but good ore is reported to exist.

MISSOURI ZINC FIELDS COMPANY.

The Missouri Zinc Fields Company owns the fee of 440 acres of mineral land situated just to the southeast of Webb City that is one of the most solid in point of mineral productions to be found in the district, having been a large and steady producer for many years.

There are nineteen shafts on the land producing ore, and during the past fiscal year there was mined and sold from these shafts 6,678 tons of zinc and 343,810 pounds of lead ore, the total value of which was \$203,380.03. There are ten complete and modern concentrating plants on the land, nine hand jig plants, two steam pumps, one air compressor, twelve steam hoisters and eight horse hoisters. The entire property is in the hands of Patrick O'Shea, as general manager. The following companies are operating on the land: Detroit-Missouri Zinc Co., Catlin & Hunter, Bell & Co., Old Colony Zinc and Smelting Co., American Zinc, Lead and Smelting Co., The Duluth Zinc Co., J. M. Slaight, J. W. Grounds, Troxell & Co., Hunter & Co., Jas. Allen, Oxford Mining Co., Alaska Mining Co., Aneta Mining Co., W. G. Miller, and the Scioto Zinc Co., a tailing mill.

NARAGANSETT LEAD AND ZINC COMPANY.

This property is situated just to the north of Webb City, and comprises forty acres, belonging to John C. Guinn of Georgia City, Mo., from whom the Naragansett Company holds a lease. The ore occurs here in hard flint ground, and there are four shafts sunk ranging in depth from 130 to 162 feet. The company's improvements consist of one complete concentrating mill of about 100 tons daily capacity, four steam pumps and two steam hoisters, and the management of the property is in the hands of E. P. Rhodes of Joplin, Mo.

WILSON & COMPANY.

This company owns a lease on 80 acres of the Rob land situated just to the south of Joplin, and has four producing shafts, ranging in depth from 130 to 171 feet. The property is just being opened up with indications of satisfactory mining. The company has \$15,000 invested, and its improvements consist of two steam pumps, two steam hoists and three hand jigs.

BUDWEISER MINE.

The Budweiser Mine is owned by H. M. Brewer, and consists of forty acres situated about one mile north of Tuckahoe. There is one shaft producing at the depth of 135 feet from which good turn-ins have been made. Ore has been demonstrated by drill at other points on the lease, and shafts are being sunk. Large bodies of zinc ore have been shown by the drill, but so far the lead ground only has been worked, and during the past fiscal year 350,950 pounds of this ore was produced. The improvements consist of one hand jig plant of three jigs, one steam pump, and one steam hoist. Seven drill holes have been put down on the lease, five of which penetrated the ore.

FUNK, BOWMAN & COMPANY.

This company is composed of Ferdinand J. Funk of Marion, Kan., H. M. Bowman and Mrs. Florinda Bradford of Webb City, Mo. This mining property consists of two city lots of Hough & Furness' addition to Webb City. The most extensive and profitable zinc ore deposits are encountered at about 190 feet below the surface, but lead ore appears to exist from about 20 feet below the surface down. The old shaft on this property bears the distinction of being the first on "Sucker's Flat" to show mineral, and was sunk by A. T. Steelman, who had purchased the lots for residence property, and discovered the ore while sinking a well. After taking out about \$25,000 worth of ore, Mr. Steelman sold the lots in 1892 to the above company, and since which time there has been about \$25,000 worth of lead and zinc ore mined and sold. While this is said to be the oldest mine on "Sucker's Flat" it is said yet to contain large quantities of ore, and during the past year a new shaft has been sunk, which became necessary for a circulaion of air.

ARKANSAS MINING COMPANY.

The "Arkansas" is composed of D. J. Young of Ft. Smith, Ark., as president, F. M. Bisbee of Springfield, Mo., vice-president and F. H. Danglade of Webb City, Mo., secretary and manager, with J. C. Stewart of Webb City as treasurer. The company is incorporated under the laws of Missouri with a capital stock of \$24,000, and operate a ten-acre fifteen-year lease at a royalty of 15 per cent., which is situated about two miles to the southeast of Webb City. The lease is surrounded by other good producing mines, and is a very promising tract of mineral land. There are three shafts sunk at different points on the lease to a depth of 195 feet with a 35-foot face of lead and zinc ore developed in each shaft, which indicates very plainly that the ore runs very generally over the entire tract. On account of litigation it has only been during the past year that this property has been developed to the point of producing profitably, their weekly production now reaching 35 tons of zinc ore and about 15,000 pounds of lead, with 25 men employed. The company's concentrating plant is modernly constructed, and is one of the best to be found in the district. It is supplied with two 80 horse-power boilers, one 65 horse-power engine, a 16-inch crusher, three sets of rolls, a 5-cell rougher and a 6-cell cleaner, steam jigs, screen, elevators,

three steam hoisters and one 4-inch discharge steam pump. The land is owned by Carter Bros. of Webb City, Mo., and the ore faces run about 8 per cent. cleaned ore.

M. S. MINING COMPANY.

This company is incorporated under the laws of Illinois, and capitalized at \$35,000, with Sydney Stein of Chicago as president, Albert Meyers secretary and F. H. Danglade of Webb City, Mo., vice-president and general manager. The company owns in fee-simple a tract of ten acres of land situated just south of the Arkansas lease, and has two shafts sunk to the depth of 195 feet, with a 35-foot face of lead and zinc ore developed in one shaft that will average about eight per cent. as hoisted from the shaft. The ore occurs in hard ground that requires no timber for the support of the drifts when properly cut; a five-drill air compressor is in use for breaking the dirt. They have a complete concentrating plant equipped with all the necessary machinery and appliances for successful operation, and will erect the second plant in the near future.

MARY S. MINING COMPANY.

The Mary S. Mining Company is incorporated under the laws of Missouri, and capitalized at \$50,000, with F. J. Ball president, Chas. Palmer vice-president and F. H. Danglade secretary and treasurer, all of Webb City, Mo. The company is operating three lots of the Eldorado lease just to the south of Carterville, and has three shafts sunk to the depth of 160 feet, with a 50-foot face of excellent lead and zinc ore developed in medium hard ground. The ground runs about 8 per cent. cleaned ore, and is so easily broken that it is handled very economically, and perhaps the best record in the district is made in hoisting, as a tub for each fifty seconds is hoisted and dumped into the crusher room. A force of 18 men is employed and a weekly production of 30 tons of zinc and 20,000 pounds of lead ore is made. In point of construction their mill is complete, and is of a 100 tons daily capacity.

McKINLEY MINING COMPANY.

The "McKinley" company is incorporated under the laws of New Jersey, with its principal office at Trenton, N. J. The company is composed of eastern capitalists who are the owners of a lease covering sixty acres of land situated about two miles south of Carterville, and owned in fee-simple by Thos. Conner of Joplin, Mo. The lease was first opened up by J. F. Wise and Thos. Conner of Joplin, Mo., by

drilling, and lead ore was encountered at 90 feet, while the zinc ore was struck at 135 feet below the surface, and is said to have continued to the depth of 200 feet, giving a large face that afterward proved to be exceedingly rich, and from which there were turned in as high as 100 tons per week, besides a good production of lead. There are two complete concentrating mills on the lease that belong to this company and two that belong to sub-lessees. The two owned by the company are known as the "McKinley" and "Spot Cash," and are well equipped with all necessary machinery and appliances for handling the ore. The general working levels have been at about 175 feet, but deeper sinking has developed what is apparently an extensive deposit of zinc ore at the level of 218 feet. Their pumping plant is of sufficient capacity to handle the water, and it is believed that a great deal of profitable mining will be had at this lower depth.

Good Enough.

The "Good Enough" mine is the property of Ed. Nelson, Miles Deer of Joplin, Mo., and Thos. Hill and others. Their lease consists of two lots of the "McKinley" lease, with one shaft sunk to the depth of about 218 feet, and are developing good zinc ore in hard ground that needs no timbering for the support of the drifts. They have a complete mill erected at a cost of about \$6,000 supplied with all machinery and appliances required for the successful handling of the ore.

Wise & Rhodes.

Wise & Rhodes are operating on the "McKinley" lease, and control six lots at a royalty of 25 per cent. They have developed a good body of ore at the depth of 180 feet in open ground. The concentrating mill recently erected is complete and thoroughly equipped with the necessary machinery and appliances for treating the ore.

SAWYER, JEFFRIES & COMPANY.

This company is composed of Thos. Sawyer, Robt. Jeffries and Jas. Madiera of Joplin, Mo. They control four acres of the Annie Donahoe lease of the Thos. Conner land situated about two miles southeast of Webb City, and have one shaft sunk to the depth of 200 feet in which rich and apparently very extensive bodies of zinc ore have been recently developed. The ore in this shaft was encountered at the depth of 162 feet, and continued good to the bottom of the shaft. Prospecting showed the ore to be very general and to run about 12 per cent. dirt as hoisted from the shaft, the ore occurring in medium hard ground *that needs no timber for support if properly mined.*

GRAY EAGLE LEAD AND ZINC COMPANY.

The "Gray Eagle" company is incorporated under the laws of Missouri, with a capitalization of \$50,000. C. G. Smallhouse of Bowling Green, Ky., is its president, while F. H. Danglade of Webb City, Mo., is secretary and general manager. The company owns 70 acres of mineral land in fee-simple at Neck City and has three shafts in which rich bodies of zinc ore has been developed, ranging in depth from 80 to 120 feet in open ground. These developments are new, and there appears to be two distinct runs of ore, both of which are very promising. The first is encountered at from 60 to 90 feet, while the second run is found at from 122 to 208 feet below the surface. There have been seven drill holes put down on the land at various points, and each of them is said to have gone through practically the same bodies of ore, thus demonstrating that the ore occurs very generally throughout the entire tract, and is reported to run from 10 to 12 per cent. ore as hoisted from the ground. The ground is easily drained, as only one 4-inch steam pump is used to handle the water. One of the drill holes mentioned above is said to have penetrated 100 feet of zinc ore continuously, with the exception of a space of 30 feet of dead ground. There are two steam hoisters in use, while the ore is cleaned over five hand jigs, and a royalty of $22\frac{1}{2}$ per cent. on zinc ore and 33 1-3 per cent. on lead ore is paid by the operators on the land.

BOSTON-GET-THERE ZINC COMPANY.

The "Boston-Get-There" is operating a forty-acre lease on land owned in fee-simple by the Whatcheer Zinc Co. of Rhode Island on which a royalty of $8\frac{3}{4}$ per cent. is paid on all minerals mined. The land is situated at Prosperity and adjoins the "Eleventh Hour" mines on the east and the "Troup" mines on the north, being located in an excellent mineral district. The property is one of the principal and steady producers of that section and has proven a source of great profit to its owners. The company is incorporated and is composed of eastern parties, with Geo. E. Keith of Boston, Mass., president, Andrew Case, secretary and P. B. Keith treasurer, while the business of the company is under the management of W. Spencer Hutchinson of Carthage, Mo. The company operates a pumping plant with which the land is drained, but do only a sub-leasing business, and sub-let *mining lots* at a royalty of $22\frac{1}{2}$ per cent. on zinc and 33 1-3 per cent. *on lead ore*. The ore occurs in hard ground of the sheet formation at

from 150 to the depth of 180 feet, the average depth of the present mining being at about 165 feet. This ground is so hard that the air or steam drill is necessary to break it successfully and economically. The ore which consists of both lead and zinc is disseminated through the rock at the depths mentioned very generally throughout the entire tract, and has a splendid cap rock over it which makes it possible to cut drifts of great width with perfect safety to the miners. The land was first prospected by Jas. O'Neill of Webb City, Mo., by drilling various portions of it, and it is said that ore was demonstrated in each drill hole. At the time this prospecting and developing began in 1892, it was not a promising undertaking, as the ground proved to be extremely hard and very expensive to sink in, but by persistent efforts Mr. O'Neill opened up a most profitable tract of mineral land.

The following tabulated statement shows the yearly production and money value of the lease since 1893:

Year.	Lead, pounds.	Zinc, pounds.	Value.
1893.....	264,430	364,530	\$8,776 30
1894.....	328,900	150,570	6,816 24
1895.....	1,382,240	838,020	32,449 88
1896.....	4,230,550	3,278,800	91,612 63
1897.....	3,457,560	3,179,600	81,984 43
1898.....	3,555,570	4,425,140	120,003 31
1899.....	1,614,520	8,108,000	170,872 00
1900.....	1,877,000	9,277,000	205,771 00
Totals.....	16,703,770	29,621,660	718,305 79

We mention below some of the successful operators on the "Get-There" lease:

St. Louis Laura S. Zinc Company.

This is an incorporated company composed principally of St. Louis parties, with A. N. Milner of that city general manager. It operates two lots of the Boston-Get There lease, and have one shaft sunk to the depth of 180 feet, and at which level they are drifting on a face of lead and zinc ore in sheet ground from 10 to 20 feet high, which appears to extend over their entire ground, as nothing is left in drifting but pillars for the ground's support. These lots are subject to a royalty of 22½ per cent. on zinc and 33 1-3 per cent. on lead ore mined. The ground has been worked in a most workman-like manner, and sufficient pillars have been left for the support of the roof which, on account of its solidity, enables the miners to drive very wide drifts

with absolute safety. The ore is very evenly distributed over the entire face, and the rough dirt will probably run from eight to ten per cent. cleaned ore. The zinc ore is of a high grade and continues in the sides of the drifts, which shows that the full extent of the ore run has not yet been reached in spite of the large output already made from the mine. The improvements consist of a complete concentrating plant supplied with sufficient boiler and engine power and all other machinery and appliances for successfully treating the ore. The ground is broken by one ninety horse-power eight-drill Ingersoll air compressor. The mill is run double shift, and produces from 90,000 to 100,000 pounds of zinc and from 6,000 to 8,000 pounds of lead ore per week. The plant was erected at a cost of about \$9,000, and has a daily capacity of about 100 tons.

Atlas Mining Company.

The "Atlas" is an incorporated company, and capitalized at \$50,000, with J. W. Grounds of Carthage, Mo., president and R. F. Glenn of the same city general manager. The company is operating four lots of the "Boston-Get-There" lease, and has two shafts down to the depth of 170 feet, which is about the level of the ore occurrence so far mined, but one shaft is being sunk deeper, and is developing a still lower run. They have been working on a face from which are produced from 50,000 to 60,000 pounds of zinc and from 8,000 to 10,000 pounds of lead ore per week. There is a complete mill in operation equipped with all necessary machinery for handling the ore, while there are two air compressors installed with which the ground is broken. Like other mines on the "Get-There," the ore occurs in hard ground of the sheet formation.

Batavia Mining Company.

This is a corporation and part of the stock is owned by the Atlas Mining Company. They control eight lots of the "Boston-Get-There" lease at the regular royalty of $22\frac{1}{2}$ on zinc and 33 1-3 per cent. on lead ore, and have one shaft down to the depth of 170 feet, with a face of ore developed from eight to twenty feet high in hard ground. They employ about twenty-five men, and produce from 15,000 to 25,000 pounds of lead and about 40,000 pounds of zinc ore per week. Their concentrating plant is complete, and is of about 100 tons daily capacity, and is supplied with an air compressor with which the ground is broken.

Chicago Joplin.

The "Chicago-Joplin" is an incorporated company, with John R. Bothwell of Carthage, Mo., president and F. M. Webber, manager. They own a lease on five lots of the "Boston-Get-There" at a royalty of $22\frac{1}{2}$ per cent. on zinc and 33 $\frac{1}{3}$ per cent. on lead ore, and have two shafts sunk to the depth of 160 feet, but operate only one. The company has a good face of ore opened here from eight to twenty feet high, but met with the misfortune recently of having their mill burned down. This is a good mine, and the mill will doubtless be rebuilt in the near future.

Charter Oak Mining Company.

The "Charter Oak" is composed of S. D. Euritt and John Roberts of Carterville, Mo., who control three lots of the "Boston-Ge-There" lease, and operate one shaft at the depth of 160. They operate only the lead ground and produce 10,000 to 30,000 pounds per week. There are a steam hoister and three hand jigs in use, and six men employed.

A. B. Wilgus.

A. B. Wilgus of Joplin, Mo., controls three lots of the "Boston-Get-There," and has one shaft sunk to the depth of 180 feet in which he has the regular run of ore developed. A complete concentrating mill is now being erected on these lots.

Smith & Beck.

This company has erected a complete tailing mill on the "Boston-Get-There" lease, to which the tailings from the various mills are hauled for a second cleaning.

TROUP MINING COMPANY.

The "Troup Mining Company" is a corporation, with Andrew Biffer of Carthage, Mo., president, J. C. Wallace of Lebanon, Mo., secretary and treasurer and W. B. Kane of Carterville, Mo., general manager. The company is capitalized at \$160,000, and owns the fee of forty acres of mineral land situated about one mile southeast of Carterville. The land is joined on the north by the "Boston-Ge-There" land and on the west by the "Eleventh Hour" mining property, and is considered one of the foremost tracts for mineral to be found in the Carterville district. There are five shafts sunk on the land ranging in depth from 175 to 230 feet. There appears to be three distinct runs of ore in this ground: The first is encountered at the 140-foot level, the

second at 180, and the third at the depth of 225 feet. At the 140-foot level, the ore occurs in open ground, while at the other two levels the ground is hard and no timbers are required for its support. There are four complete concentrating plants on the land and one tailing mill. About sixty men employed on the land, and the production is about 100,000 pounds of zinc ore per week when the mines are in regular operation. The company maintains a pumping station, equipped with two sixty-five horse-power boilers, one fifty horse-power engine, one 5-inch Dean and one 3-inch Gardner pump with which the ground is drained. Power is also furnished from this plant to run the machinery of the company's concentrating plant, which is supplied with all the necessary machinery and appliances for reducing and cleaning the ore ready for the market. This concentrating plant has been leased out, and the company now does only a leasing business, charging the operators 20 per cent. on zinc ore and 33 1-3 per cent. on lead. Mention is made below of some of the operators on the "Troup."

Standard Zinc Mining Company.

This company is incorporated with John C. Heild of Washington, D. C., president and J. R. Andrews of Carthage, Mo., general manager. The company owns a lease on seven lots of the "Troup" ground, and has one shaft down to the depth of 185; but a drift is run at the 170-foot level on a fourteen-foot face of ore in hard ground of the sheet formation, which carries both lead and zinc ore, and is very similar to that of the "Boston-Get-There" ground. They employ about twenty-five men to the shift and produce from 20,000 to 25,000 pounds of lead and about twenty tons of zinc ore per week. There is a complete mill in operation, equipped with the necessary machinery and appliances for handling the ore. This mill is also supplied with two Bartlett tables and a six-drill air compressor.

St. Louis Laura S. Zinc Company.

This company is the same that is operating on the "Boston-Get-There," and is also under the management of A. N. Milner. The control three lots of the "Troup" ground, and have one shaft down to the depth of 175 feet, with a fifteen-foot face of lead and zinc ore developed at the bottom of the shaft. Drifts have been cut on faces or ore to the line of this property from four different sides, which makes it a very promising piece of mining ground. Like the "Get There," the ore occurs here in hard ground of the sheet formation. About twenty men are employed, and a weekly production of from 20,000 to 25,000

pounds of lead and about 15 tons of zinc ore is made. Their mill is complete, and is supplied with one six-drill air compressor, with which the ground is broken, and all other necessary machinery and appliances for successfully handling the ore.

Chicago-Joplin.

This is a corporation, with John R. Bothwell of Carthage, Mo., president and F. M. Webber general manager, the company being the same that is operating on the "Boston-Get-There." They control four lots of the "Troup" ground, and have two shafts sunk to the depth of 180, at which level one shaft is being operated. The ore occurs here in hard flint ground of the sheet formation, and there appears to be a face of from eight to nine feet. They have a large and complete mill of about 150 tons daily capacity supplied with a six-drill air compressor and all the necessary machinery, etc., for handling the ore. There are about twenty men employed and a weekly production of from 30 to 35 tons of zinc ore is made, on which a royalty of twenty per cent. is paid. The lead royalty here is 33 1-3 per cent.

Inca Mining Company.

The Inca company has the old "Troup" mine leased, and pay a royalty of twenty per cent. and a mill rental of \$100 per month. Their lease covers four lots, and they have one shaft down to the depth of 230 feet, in which they are drifting at the 180-foot and also at the 225-foot level. The ground here is open, but does not require the use of timbers, if properly cut. There are ten men employed, and a production of eighteen tons of zinc and from 6,000 to 10,000 pounds of lead ore is made per week. They have a complete mill supplied with sufficient boiler and engine power, rolls, crusher, steam jigs, and all other necessary machinery for handling the ore.

Smith & Company.

This company operates a custom and tailing mill on the "Troup" land. They crush and clean the ore for small operators who have no mill, and clean the tailings the second time from the various operating plants on the "Troup" land.

ELEVENTH HOUR MINES.

The mining lands, known as the "Eleventh Hour," comprise 120 acres, and is owned in fee-simple by Mrs. E. J. Chinn of Webb City, Mo., but is leased to Jos. W. Aylor of the same City. This tract of valuable mining land is situated about two miles southeast of Webb

City and south of Carterville. It joins the "Troup" and "Boston-Get-There" lands on the west, while it has the "Beckwith & Hall" lease adjoining it on the west. The first prospecting on the land dates back to 1885, when ore was discovered, but very little mining was done until 1889. Since that time probably fifty shafts have been sunk on the land, the greater portion of which entered the ore bodies. The "Eleventh Hour" mines have a splendid record as producers for many years back, and we believe if some concessions were given the operators in the way of royalties it would soon equal any of our most noted mines in the district in point of productions. The entire lease is under the management of Ben. C. Aylor of Webb City, who has J. W. McMunn associated with him as weighmaster and clerk. The land is all platted into mining lots of 200 feet square, and on a large majority of them shafts have been sunk, and developed excellent bodies of ore. The shafts that have developed the ore range in depth from about 150 to 247 feet, which is probably the deepest shaft sunk in the district, but at this great depth large and rich deposits of ore were encountered. The ground is very hard and the ore sometimes occurs in the sheet formation which is general in the "Boston-Get-There" ground to the east. Large sums of money have been expended in an effort to drain the ground to the lower levels of ore, and success has been fairly attained but the drainage is not yet complete. There are now seven concentrating mills that have profitable deposits of ore to work and two tailing mills located on the ground. The operators on the land have the advantage of the Mo. Pacific and Memphis railroads for transportation. We make brief mention of some of the operators below:

James Gladden.

James Gladden of Johns Town, Mo., operates four lots of the "Eleventh Hour" lease, and has three shafts sunk to the depth of 180 feet, with zinc ore developed in each shaft. He pays a royalty of 22½ per cent. on zinc and about 50 per cent. on lead ore, and is taking up stopes in the zinc ground of from six to ten feet in thickness. The lead royalty is so high, it appears that little attention is given to that part of the ground. He has a complete mill supplied with all necessary machinery for properly handling the ore.

J. C. Miller & Company.

This company has control of three lots of the "Eleventh Hour" ground, and has three shafts down to the depth of 185 feet in fair ore and down to water. A little better drainage is necessary here for successful operations. They have a complete mill and will resume

operations as soon as the water is lowered sufficiently for the ore to be reached.

Blue Grass Lead and Zinc Company.

This company is incorporated under the laws of Missouri, with Capt. Smallhouse of Bowling Green, Ky., president and Frank Danglade of Webb City, Mo., as general manager. The company owns a lease on three lots of the "Eleventh Hour" land at the regular royalty, and has two shafts sunk to the depth of 185 feet that have developed excellent bodies of ore in hard ground. There is a complete concentrating plant on the lots and good productions will doubtless be made when the ground is a little better opened up, so that the mill can be furnished plenty of dirt.

Nut Meg Mining Company.

This company is composed of Indiana and Ohio parties, and is operating four lots of the "Eleventh Hour" lease. They have three shafts sunk to the depth of 187 feet, with fine bodies of zinc ore opened up in each shaft. The ore occurs in hard flint ground, and no timbers are necessary for the support of the drifts. The mine is now shut down on account of the reduced price offered for the ore, and will not likely start up until prices are advanced. They have about 300 tons of zinc ore in the bins unsold. Their mill is complete in all its parts, and from twenty to twenty-five men are given employment when it is in operation.

Grass Hopper.

The "Grass Hopper" is the property of Humes, Gibson and Company of Webb City, Mo. Their lease covers three lots of the "Eleventh Hour" ground, and there are two shafts sunk to the depth of 180 feet, in which fair bodies of zinc ore have been developed in hard ground. The mine is under the management of Chas. Humes of Webb City, and there is a production of about one car of zinc ore made each week. They have a complete concentrating mill supplied with all necessary machinery for treating the ore.

Irene S.

The "Irene S." is owned by Mr. Steinburg of St. Louis, Mo. He is now milling the dirt from the West Va. ground for Burch & Burke, but is expected to begin working his lots of the "Eleventh Hour" lease soon.

Ben. C. Aylor.

Ben. C. Aylor controls five lots of the "Eleventh Hour" lease, and has three shafts down to the depth of 180 feet, in which rich and ex-

tensive bodies of zinc ore have been developed. He has erected a very complete concentrating mill at a cost of \$5,500, and his average output when in regular operation reaches about 50,000 pounds of zinc ore per week.

THE AMERICAN ZINC, LEAD AND SMELTING COMPANY.

The American Zinc, Lead and Smelting Co. is one of the largest companies operating in the Joplin district, and possesses the greatest acreage of improved and unimproved lands of any company in the Joplin district, with the possible exception of the Granby Mining and Smelting Co.

The company was organized in January, 1899, by Hon. W. C. Renfrow, ex-governor of Oklahoma. The authorized capital of the company is \$2,500,000, but stock has only been issued to the extent of \$1,500,000. The company owns the fee and leases of 3,300 acres of land, most of which is situated in the heart of the most productive portion of the district, with splendid railroad facilities on every tract.

The officers of the company are Richard A. Parker of Boston, president; Edward P. Brown of Boston, treasurer, and F. W. Batchelder of Boston, secretary. The headquarters of the company are at No. 8 Congress St., Boston, Mass., and the offices of the company in the Joplin district are at Carterville. Ex-Governor William C. Renfrow is the president director of the company in the Joplin district, and gives his personal attention to the business of the company, and it is largely owing to his conservative business methods and intimate knowledge of the district and methods of operation that the company's properties have developed so rapidly and are constantly increasing their producing capacity. The output of the American Zinc, Lead and Smelting Co. is the largest of any single company in the district and exceeds the combined output of several of the large companies operating at Joplin and elsewhere.

William B. Fisher is the general manager of the company, and has entire charge of the operations of the various mills and leases. Mr. Fisher is a mining engineer of wide experience, having been engaged in gold, silver, copper and lead mining for the past twenty years. He came to the company from California, and the effects of his technical knowledge and wise and prudent management are shown in the splendid showing made by the company during the first year of its existence when dividends amounting to \$180,000 were paid, or 12 per cent. on the stock issue of \$1,500,000.

As before stated, the company owns and has leases on 3,300 acres of land, and has \$1,200,000 invested in lands and machinery. The

company operates with its own employes eight complete concentrating mills and fourteen mines. The average depth of the shafts operated by them is about 129 feet, and to run their mills and mines, they use 24 boilers, 18 big steam pumps, 3 air compressors, 17 steam hoists and 28 steam jigs. They employ about four hundred miners, and have 45 other employes in various capacities at their mines, mills and leases. They pay all employes weekly, and the average rate of wages is \$2.30 per day.

Outside of the mills operated by the company, there are 15 mills operated by sub-lessees, as follows: The Missouri Blanket Vein Co., Marguerite Mining Co., Oscola Mining Co., Bell Mining Co., Cass & Moore, Black Diamond Mining Co., Buff Cochin Mining Co., Hawkeye Mining Co., Mocking Bird Mining Co., Dividend Mining Co., Britton Mining Co., Pickett Mining Co., New Jersey Mining Co., Union Mining Co., and Kentucky Mining Co.

The mills owned and operated by the company are the Gaddis and Klondyke at Oronogo, the Silver Dick at Centre Valley, the Richland No. 1, Richland No. 2, and Richland No. 3 at Carterville, and the Beulah C. on the ground of the Missouri Zinc Fields at Carterville.

The company sub-leases and receives royalty from the following tracts: The Missouri Central at Central City, 51 acres; the royalty being 20 per cent. on zinc and on the \$28 basis for lead. The Richland, 30 acres at Carterville; royalty $22\frac{1}{2}$ per cent. on zinc and 33 1-3 per cent. on lead. The Cornfield, 80 acres at Carterville; royalty, 20 per cent. on zinc and 33 1-3 per cent. on lead; and the Centre Valley, $166\frac{1}{2}$ acres with about the same royalty. In addition to these, they own the Burch lease of 20 acres and the Haslett 20-acres lease, both at Carterville, on which nothing but development work has been done and the Midway lease of 80 acres at Duenweg where they maintain an extensive pumping plant and where a large number of prospect shafts are going down.

The fees which the company owns are as follows: One-half the fee of the Richland 30 acres at Carterville, the Keller 80-acre tract and the Hockaday 73 acres at Centre Valley, the Porter tract of 160 acres at Central City, the Inter-Urban 40 acres at Central City, the Midway tract of 200 acres northeast of Joplin, the Davey 392 acres, the Stout tract of 120 acres and the Tower 20 acres, all at Carterville, and the great Jackson Armil tract of 1,000 acres just over the Newton county line southeast of Joplin.

The company has a handsome modern stone office on the Cornfield tract at Carterville which is centrally located with reference to its other properties and under the energetic supervision of Gen-

eral Manager Fisher, the mills and mines of the company are always kept up to the highest standard of efficiency.

HOMESTEAD LEAD & ZINC COMPANY.

The Homestead Lead & Zinc Co. is composed of S. C. & W. B. Edgar of St. Louis, Mo., who own the fee of 80 acres of mineral land situated about one-half mile to the south of Carterville. This land was purchased of Mr. Motley by this company some years ago and is yet spoken of in some instances by that name. There are four shafts sunk on the land ranging in depth from 180 to 200 feet with large and rich bodies of zinc ore developed; in fact, this land is now one of the foremost producers of the Webb City and Carterville district. The ore occurs in hard ground which is broken by the use of air drills. The dirt is hoisted by the use of four steam hoisters and during the past fiscal year there were produced 3,986 tons of zinc and 375,560 pounds of lead ore which sold for \$137,000. The mines are under the management of Geo. W. Warne of Carterville, Mo.

KANE MINING COMPANY.

This company is composed of W. B. Kane of Carterville, Mo., and others, who own a lease on 40 acres of mineral land situated just to the northeast of Carterville. The existence of a most excellent body of zinc ore has been proven here and everything points to very profitable future operations. One shaft has been sunk to the depth of 180 feet, near which a complete concentrating mill has been erected, supplied with all appliances, including an air compressor, for treating the ore. The other improvements consist of three pumps, three steam hoisters and five horse hoisters. This property is new and promising, and is under the management of J. W. Frey of Webb City, Mo. Those operating on the lease are as follows: Argo Mining Co., E. E. Homan, Stevens & Bowman, Geo. B. Honeis & Co., J. B. Moore & Co., Lula Gilbert & Co., Geo. M. Taylor & Co. and M. Leon & Co.

MANHATTAN MINING COMPANY.

This mining company is operating 40 acres of mineral land near Webb City and described as the SE. $\frac{1}{4}$ of SW. $\frac{1}{4}$, Sec. 20, Tp. 28, R. 32. There are three shafts sunk on the land ranging in depth from 200 to 223 feet, with ore being produced from two of them. The greater portion of the past year has been spent in development work, yet there was mined and sold ore to the value of \$9,821.78. The improvements now on the land consist of one concentrating mill, one

hand jig plant, two steam pumps, one air compressor, two steam hoists and one horse hoist. E. E. Dwight of Webb City is manager.

REGAN MINING COMPANY.

The Regan mining land comprises 240 acres belonging to the Regan heirs and is situated about three miles to the northeast of Joplin. A large number of shafts have been sunk on this land with fair results as regards mineral, but only one shaft is producing ore at the present time. There are three hand jig plants and four horse hoisters reported as used. The property is managed by Sam H. Regan of Carthage, Mo.

THE ROBERTA MINING COMPANY.

The Roberta Mining Company operates a lease on 40 acres of mineral land situated about one-half mile south of Prosperity and was formerly known as the "Tender Foot." There is one complete concentrating plant supplied with an air compressor and all necessary machinery and appliances for treating the ore. One shaft has been sunk to the depth of 200 feet, at which level the ore is mined. This is a very promising tract of mineral property and we expect better returns for the current year. Ore to the value of \$8,920 was produced and sold during the past fiscal year. The mines are under the management of W. B. Kane of Carterville, Mo.

BECKWITH-HALL MINING COMPANY.

The Beckwith-Hall Mining Co. is composed of H. H. Beckwith, W. E. Hall, James Luke and H. C. Cowgill, all of Carthage, Mo. They have a lease on 40 acres of land owned in fee by Judge McGregor of Carthage and situated about one mile south of Carterville. There have been four shafts sunk on the land ranging in depth from 155 to 181 feet, two of which are new. The improvements on the lease consist of two complete concentrating plants supplied with all the necessary machinery and appliances for treating the ore and each with an air compressor which furnishes power for the steam drills in the ground. The lease is adjacent to other good producing mines, and during the past fiscal year there were produced from the land 1,720 tons of zinc and 480,000 pounds of lead ore, which sold for \$59,310. The operators on this lease are as follows: Opal-Wonder Mining Co., Richmond Mining Co. and Jordon & Co.

GARDEN CITY MINING COMPANY.

The Garden City Lead & Zinc Company owns a lease on 40 acres of mineral land situated just to the northeast of Webb City and to

the northwest of Carterville, which is under the management of B. Shubert of Webb City. The improvements consist of two concentrating mills, one pump and two steam hoisters, while there are two shafts sunk on the lease that have developed zinc and lead ore.

INVESTORS MINING COMPANY.

This company owns a lease on 40 acres of mineral land situated just to the west of Webb City, which was obtained of J. W. Taylor of Webb City, Mo. This property was mined years ago, but reopened by this company during the past year; it erected a new and complete concentrating mill supplied with all necessary appliances for treating the ore. In addition to the mill, there is one pump and two steam hoisters. One shaft is operated at the depth of 200 feet and the mines are under the management of John M. Stewart of Webb City.

MT. ARARAT MINING COMPANY.

The Mt. Ararat mine is the property of T. W. Hill of Prosperity, Mo., and is situated about two miles south of Carterville. His lease comprises 10 acres of land obtained of Thos. Connor of Joplin, Mo. This property is surrounded by some of the best mines of the Carterville district. There are four shafts sunk on the lease ranging in depth from 120 to 235 feet, with the richer bodies of ore reported below the 200-foot level. During the past fiscal year there were produced 500 tons of zinc ore and 300,000 pounds of lead, which sold for \$20,859.00. The improvements consist of one of the most complete concentrating plants in the district, one steam pump, five steam hoisters, besides other necessary buildings about the mines. The operators on the land, aside from Mr. Hill, are The Oregon Mining Co., John J. Mining Co. and the Cube Root Mining Co.

ELDORADO MINING COMPANY.

This mining property is situated just to the south of Carterville and comprises 28 acres, while the lease is the property of J. A. Bowman of Webb City, Mo., and Geo. Davidson of Carthage, Mo. There are four shafts sunk on the lease to an average depth of 175 feet, from about which level the greater portion of the ore is mined. The ore, which consists of both lead and zinc, exists in hard ground of the sheet formation and during the past fiscal year there was mined and sold a product valued at \$51,710.47. There are three complete concentrating mills erected on the lease, two of which have air compressors. Those operating on the land are as follows: Muncie Mining Co., The Gouger Lead & Zinc Co., Mary S. Mining Co., Charter

Oak Mining Co., Flint Lead & Zinc Co., Mayflower Mining Co. and the A. & G. Mining Co.

DAVEY & SON.

Davey & Son are the owners of a lease on 80 acres of mineral land situated within the city limits of the city of Carterville and belonging to the North & South Carterville Mining Co. This tract of land was one among the first to be opened for mining purposes in the Webb City and Carterville districts and is, therefore, closely connected with the early history of these mining centers. Mining began in the year 1876 and since that time lead and zinc ore to the value of nearly \$3,000,000 has been mined and sold. The production for the past fiscal year shows 2,945 35-100 tons of zinc and 814,630 pounds of lead ore which sold for \$104,002.45. This very handsome production is evidence that the property is yet very valuable for mining purposes regardless of the enormous amounts already mined. There are eight complete concentrating mills on the lease, four hand jig plants with eight hand jigs, seventeen boilers, four steam pumps, eleven steam hoisters and six horse hoisters with fifteen producing shafts at an average depth of 130 feet. Three of the mills mentioned above have been erected during the past year. We mention below the companies operating on the Davey lease: Cordell Zinc & Lead Co., Kaw Mining Co., Stamp & Co., Zenith Mining Co., Iowa Mining Co., Little Jennie Mining Co., Barrett & Co., Mathews & Co., Davey No. 6, Hannum & Co., Moss & Co., Hascock & Co., C. C. C. Mining Co., Greely & Co., White Swan Co., Whiteley & Co., Messmore & Co., Glynn & Co. and Garred & Co.

THE MOHAWK MINES.

What is known as the "Mohawk" mine comprises eight acres of mineral land situated about one mile south of Carterville and is owned in fee-simple by Thos. Conner of Joplin, Mo. The land is under lease at 15 per cent. royalty to Thos. J. Steers of Joplin, who has one double shaft down to the depth of 204 feet and is drifting on a fair face of ore in hard ground. There is one complete and modern concentrating plant of about 100 tons daily capacity erected on the lease equipped with the necessary pumping capacity for drainage purposes, together with all necessary machinery and appliances for successfully treating the ore. Mr. Steers is now installing a seven drill air compressor, with which he expects to break sufficient dirt to keep the mill in operation.

SADTLER LEAD AND ZINC COMPANY.

The officers of the Sadtler Lead & Zinc Company are as follows: S. P. Sadtler, Philadelphia, Pa., president; Chas. M. Dodson, Bethlehem, Pa., vice-president; Josiah Backman, Bethlehem, Pa., secretary, and H. L. Farrand of Joplin, Mo., superintendent. The company owns in fee-simple a tract of mineral land containing 220 acres one-half mile southeast of the Duenweg camp. Prospecting was commenced on the land with a steam drill in 1895 and nearly five thousand feet of drilling was done and it is said that lead or zinc ore was struck in a majority of the holes put down and in some of them both lead and zinc were found in large quantities. Considering the ore encountered with the drill and the close proximity to other heavy producing mineral grounds this will certainly prove to be a very good tract for mining purposes. The company owns a complete concentrating plant of large capacity, equipped with two 80 horse power boilers, two engines of 40 and 25 horse power, one 16-inch crusher, three sets of rolls, elevators, screens, steam hoister and a 4-inch centrifugal pump which supplies the mill with water. The policy of the company has been changed since Mr. Farrand has taken charge of the property and instead of working the land by the Sadtler company they are leasing the ground in 40-acre tracts, and the indications are that the output will be very large in the near future.

The Canton-Duenweg Lead & Zinc Co.

This company is composed of Canton, Ohio, people who have recently leased the 40 acres on which the "Sadtler" mill is situated and have also leased the mill. They have pumped the water from the mine and have started some prospect drifts that show good indications for a large run of ore.

The Altona Lease.

This company is composed of H. L. Farrand of Joplin, Mo., W. B. Post, S. A. Stuckey and T. T. Lipscomb of Carthage, Mo., who have leased the east 40 of the Sadtler company. They have put down five drill holes and found good ore in three of them at the depth of 130 feet, which continued to 160 feet and a shaft is now being sunk for further development. This company has contracted for a concentrating plant.

Maloney & Murphy.

These people have a lease on the 40 next to Duenweg and will immediately commence to develop the ground.

HOUSTON LEAD & ZINC COMPANY.

The officers of the Houston Lead & Zinc Co. are as follows: Edward J. Houston, Philadelphia, Pa., president; Josiah Backman, Bethlehem, Pa., secretary, and H. L. Farrand of Joplin, Mo., superintendent. The company owns in fee-simple a tract of mineral land situated about one mile east of the Duenweg camp. The developments are new and limited. The Goff Mining Company, of which Judge C. Fulkerson is president, has a lease on a forty-acre tract of the land and has sunk three shafts from 54 to 92 feet in depth, and has developed ore in each shaft. These developments are very promising and have the appearance of developing into profitable mines.

PLEASANT VALLEY MINING COMPANY.

The Pleasant Valley Mining Company controls a lease covering 90 acres of mineral land situated about three miles to the southwest of Carthage and has convenient shipping facilities furnished by the Missouri Pacific R'y Co. Zinc ore has been encountered and mined at both shallow and deep points from this land, but the great bulk of ore is mined from about the 200-foot level, at which level the ore exists mostly in the sheet formation and in great quantities. This property is considered one of the best producers of high grade zinc ore in the Joplin district. The company has one complete concentrating mill supplied with all necessary machinery and appliances for properly treating the ore. Two steam pumps are used for drainage and milling purposes and the ore is mined principally from one shaft. The lease is the property of H. N. Cornell of Carthage, Mo., and others, Mr. Cornell being the manager.

CROWN POINT MINING COMPANY.

The Crown Point lease is situated about one-half mile to the east of Duenweg and is the property of W. G. Davidson of Carthage, Mo., and J. A. Bowman of Webb City, Mo. The lease was acquired at a royalty of 10 per cent. on all minerals mined and covers 95 acres in which there have been at least 100 shafts sunk ranging in depth from about 20 to 140 feet. This company opened up the land in 1897 and has been *doing a leasing business* principally since that time.

charging the operators $22\frac{1}{2}$ per cent. royalty on zinc ore, while the lead is mined on the \$28.00 basis, St. Louis prices. The company maintains a pumping station with two 9-inch lift pumps, one steam hoist, office and scales.

ORONOGO MINING DISTRICT.

The Oronogo mining district has presented one the busiest scenes during the past year of any mining camp of similar area to be found within the State. It is probably the oldest mining camp in Jasper county, but not until the past three years has it appeared out of the ordinary as a producer of zinc ore. The shallow mining has been carried on here as long as many of the oldest inhabitants remember the place, but about three years ago miners began to go deep for mineral and were rewarded by encountering deposits of high grade zinc ore that have in this short time made Oronogo famous and which have shown to the world some of the richest zinc mines in existence. The greater portion of the mining done here is confined to a small area and on lands owned principally by the Granby Mining & Smelting Company, yet prospectors have been at work on adjoining lands where rich ore deposits have been demonstrated by drill and where shafts are now being sunk for further development. The ore occurs here usually in ground of a hard character and concentrating mills become necessary for successful operations and these have been rapidly erected until now there are about twenty of them on probably less than one hundred acres of land. We make brief mention of some of these operators below.

THE GRANBY MINING & SMELTING CO. AT ORONOGO.

The Granby company at Oronogo owns the fee of about 400 acres of mineral land which is under the management of M. F. Downing as superintendent, who has been with the company in this capacity for about ten years at this point. Eighty acres of the company's land are sub-leased to operators and among whom are some of the strongest in the district. There are seventeen complete concentrating mills on the land, together with some of the largest and deepest shafts, and most expensive and improved machinery to be found in the lead and zinc mines of the southwest. This ground has proven itself to be the most remarkable in point of the production of high grade zinc ore to be found in Jasper county. The ore found here is celebrated for its richness and unvarying high quality and brings what is termed the top price. The average depth of the present workings is about 120 feet, but there are rich and extensive

ent workings is about 120 feet, but there are rich and extensive deposits being worked at from 140 to 175 feet, and the deep drilling done during the past year or two has developed the ore at a still greater depth of from 215 to 240 feet. A great deal of new development work is constantly going on and the company itself is spending considerable money in drilling and locating the ore runs and leasing to substantial companies having sufficient capital to open up the ground and for the erection of mills. Following we mention some of the operators on the Granby land at Oronogo.

Boston Little Circle.

Among the large companies operating on the Granby company's land at Oronogo is the Boston Little Circle Zinc Co., which has nine modern and complete concentrating mills erected on the leased ground which it controls. This company is reported to be setting aside a portion of its earnings for development work, which will include additional drilling and the erection of a 150-ton high power mill on lots where it is said a very rich strike has recently been made. One of the largest shafts in the district is going down on this company's lease and near which a large mill is to be erected to handle the dirt.

The Sludge Mill.

In addition to other advantages offered operators on the Granby land at Oronogo, is the largest and most complete sludge mill in the district, equipped with cables and the very latest improved machinery in use that will extract almost every particle of ore in the tailings taken to it for treatment. The tailings from the plants on the land are hauled to this mill for a second cleaning and the sludge company pays a royalty to the original owners on all the ore thus extracted.

Ball & Gunning.

This company is composed of G. W. Ball of Webb City and W. M. Gunning of Oronogo, Mo. They own a lease on 6½ lots of the Granby land at royalty of 20 per cent., and have three shafts down to an average depth of 137 feet. The ore is encountered on this land at about the 60-foot level, and is said to continue to the bottom of the shaft. The ore occurs in reasonably hard ground, which is claimed to run 10 per cent. cleaned ore, which makes this one of the best properties among the famous mines of Oronogo. The company has a complete mill, and gives employment to about 24 men, and makes a weekly production of about 40 tons of zinc ore.

La Tosca Mininig Company.

The "La Tosca" company is incorporated and capitalized at \$40,000, with a majority of the stock held by eastern parties, while the minority portion of the stock is held by Isaac Kahn and P. J. Wessell of Monett, Mo. The company is the owner of a lease on six lots at a royalty of fifteen per cent. acquired of the Granby company, and has three shafts sunk to a depth of about 155 feet, and from which level the principal part of the ore is mined. The ground is hard, and is easily held without the use of timbers, while the ore faces are very extensive and present the appearance of a great deal of profitable mining ahead. Its improvements consist of a very complete concentrating plant supplied with sufficient boiler and engine power, steam jigs, crusher, rolls, screens, hoisters, etc., and pumps with which the ground is drained and water furnished for general milling purposes.

Texas Star Mining Company.

The Texas Star Mining Cimpany cintrols a lease on sixty acres of land situated just to the north of Oronogo and owned in fee-simple by Mose Elliott and the Granby Mining and Smelting Co. There are two complete concentrating mills erected on the lease of about 100 tons daily capacity each, and supplied with all the necessary machinery and appliances for properly treating the ore. Two shafts have been sunk to the depth of 180 feet, which have developed zinc ore in hard ground. There are four steam and five horse hoisters in use, while the production of zinc ore for the portion of the year operated amounted to \$38,496. The management of the mnes is in the hands of Willis Watson of Oronogo, Mo. The following companies are given as operators on the lease: W. E. Simpson and others of St. Louis, Mo., Magnolia Mining Co., Black & Addens, Frank Orr and the Cow Boy Mining Co.

MIGONETTE MINE.

This mine is located on what is known as the Hall land about six miles to the northwest of Carthage, and is the property of Messrs. Waddell & Co. of Carthage, Mo. The company's lease covers four acres, with a reported investment of \$30,000. There is one shaft sunk to the depth of 170 feet with very good bodies of zinc ore developed, while the company's improvements consists of one complete concentrating mill of about 100 tons daily capacity, one steam hoist and one steam pump. This is a new mine, but promises to become a good producer. T. J. Waddell of Carthage, Mo., is manager.

NECK CITY AND ALBA DISTRICTS.

The thriving mining camps of Neck City and Alba are now among the most permanent mineral districts of the southwest, and there can be no longer a question as to the existence of enormous and rich deposits of zinc and lead ores. These camps are comparatively new, but the fact of there being most extensive bodies of ore has been thoroughly demonstrated by both drill and shaft, and the ore has been found to exist from points near the surface to the great depth of 300 feet. There are to be seen here the most improved plants and mining machinery to be found anywhere in the mineral belts, and yet one may run down the line of improvements and still find the primitive windlass in use here. With the increasing mineral developments at these camps the population increases, and today we find bright and bustling cities there. About the only disadvantages these camps have is in the transportation facilities, the ore having to be hauled to the Frisco R'y, four and six miles distance, but this disadvantage is partly overcome at least by the high grade ore mined, as it usually sells for the full top price paid in the district. These mining camps are situated about eight miles north of Webb City and about twelve miles to the northwest of Carthage, being a short distance north of Spring River. We mention below some of the operators at the Neck City and Alba camps.

OLD COLONY ZINC AND SMELTING COMPANY.

The Old Colony Zinc and Smelting Company is a corporation with a capitalization of \$1,000,000. Col. Clark of Boston, Mass., is president of the company, while L. W. Winters of Joplin, Mo., is secretary and manager. This company owns mineral properties at different points in the mineral belt, but the property we refer to here is located at Neck City, a new and thriving mining camp situated about eight miles to the north of Webb City, and consists of 237½ acres in fee. The developed portion of this tract of land covers 37½ acres on which there are six producing shafts sunk to a depth ranging from 200 to 285 feet. We find here one of the largest and the deepest shafts sunk in the district; it is 6 by 12 feet in the clear and sunk to the great depth of 285 feet. The work of sinking this shaft was begun in March last, and the shaft was completed the first of the following September. *This property can probably well claim the distinction of having the*

greatest continuous deposit of ore yet developed by drill in the district. The drill is reported to have entered the ore at the depth of 180 feet and to have continued in ore to the depth of 298 feet. The large shaft mentioned was sunk to the depth of 240 feet without the aid of a pump. The ore mined here is of a very high grade, and apparently exists in extensive quantities, the records showing a weekly production of as much as 85 tons of zinc ore, besides large quantities of lead ore mined. The production for the past fiscal year was 2,346 45 tons of zinc and 469,130 pounds of lead ore, which sold for the neat sum of \$96,298.24. There are three complete concentrating plants on the land of about 100 tons daily capacity each, four steam pumps and seven steam hoisters. The companies operating on the land are as follows: Big Four Mining Co., Rubber Neck Mining Co., Big Indian Mining Co., Close Call Mining Co., Shepard Mining Co., Blunt Mining Co., Campbell Mining Co., and the Prigmore Mining Co. The property was formerly owned by the Ball Land and Mining Co.

SPHINX MINING COMPANY.

The Sphinx Mining Company is operating 32 acres of mineral land situate at Neck City, about eight miles north of Webb City, and owned in fee-simple by the Calumet Zinc Land Co. The company is incorporated under the laws of New Jersey with a capital stock of \$70,000. W. J. V. Stokes of Trenton, N. J., is the president, C. A. Daniels of Philadelphia, Pa., secretary and treasurer and J. B. Daniel of Webb City, Mo., is the general manager. The land produces zinc ore only, and the Sphinx company pays a royalty to the land owners of 10 per cent. There is one complete and modern concentrating plant in operation on the lease and one hand jig plant with two shafts sunk to the depth of 205 feet in which good bodies of zinc ore have been developed. There were produced from these shafts during the past fiscal year 1,079 tons of high grade ore, which sold for \$34,343.09. The further improvement on the lease are two steam pumps, three steam hoisters and four horse hoisters. The following are operators and prospectors on the lease: Neck City Mining Co., Ruby Mining Co., Monte Christo Mining Co., Great Oak Mining Co., C. M. Mining Co., and G. L. Cole.

MISTLETOE MINING COMPANY.

The Mistletoe Mining Company is composed of G. W. Johnson, Geo. Lowery, Hugh Campbell, G. H. Ruddy, W. B. Kane and A. Daugherty, with the management of the affairs of the company in the hands of Mr. Kane. The tract of mineral land operated by this company

contains 40 acres situated near Neck City and about eight miles to the north of Cartersville, and adjoining the Old Colony on the north, being just west of the Sphinx mines. Four shafts have been sunk on the lease ranging in depth from 79 to 190 feet, with lead and zinc ore developed. The best developed lots, however, belong to the Big Kate Mining Co. They have four lots of the Mistletoe ground with a thirty-five-foot face of free zinc ore developed and good ore reported in bottom of the shaft. A concentrating mill is being erected by the "Big Kate" company and good results are expected to follow. Others are prospecting on the lease, but not to a sufficient depth for the mineral. The mining improvements on the lease at the present time consist of four hand jig plants, one steam pump, one steam hoist and three hoisters. Following are the companies operating and prospecting on the lease: Big Kate Mining Co., Blake & Sutherland, F. M. and Annie Walton, White, Warne & Bryant and Shirley, Crandall & Co.

NEWTON COUNTY.

THE GRANBY MINING & SMELTING COMPANY.

On account of the long and prominent position occupied by the Granby Mining & Smelting Company in our mineral fields, we consider a review somewhat in detail as proper matter for this report.

Parties connected with this company commenced mining operations at the village of Granby in the early 50's, but did not effect an organization until the year 1865, since which time it has been constantly adding to its holdings, increasing the scope of its operations and keeping pace with all the improvements in the methods of mining. Being constantly in operation since that early day, it has passed through all the vicissitudes of the business during good and bad years and its record is clean, honorable, businesslike, and eminently successful, until today it owns and controls a greater acreage of improved and unimproved mineral lands than any other zinc and lead mining company in the entire Southwest Missouri mining district. As reported to us, the company now owns at and near Granby 10,980 acres, in and around Joplin and at Oronogo 400 acres, making a total acreage of 11,380 in the counties of Newton and Jasper, all mineral lands capable of producing practically unlimited quantities of ore and very large percentage of which is highly developed. The company incorporated with L. C. Burns as president and treasurer; J. N. *ms, Jr.*, vice president, and E. S. Gatch, secretary and general man-

ager, with office in Equitable Building, St. Louis. Mr. Gatch became manager in 1896 and under his management, ably assisted by Mr. John Kingston, resident superintendent, the company has expanded until it has become one of the most powerful and successful lead and zinc mining corporations in the country. The operations of the Granby company at Granby are on a scale of great magnitude and in many respects differ radically from those of other mining companies in the district, and being not only one of the largest and also one of the oldest and most successful companies in the district, it furnishes indisputable evidence that zinc and lead mining in this district is a profitable business at all times and under all circumstances when conducted by men of experience and ability. The company has been so long established that its operations form an important part of the history of the Southwest Missouri mining district and of Newton county in particular. Among its employes may be found three generations of the same family, father, son and grandson, showing that the methods of the company in addition to being successful from a business standpoint, are such as to secure the respect and confidence of their employes and tenants on the ground.

Lead was first discovered at Granby in 1850, but no mining of any consequence was done until 1853-1854, when a miner named Foster mined a considerable quantity of lead. A furnace of three Scotch eyes was soon afterward built, which was followed by two smaller ones and all three kept busy. The pig lead manufactured was hauled to Ft. Smith, Ark., and was boated down the Arkansas and Mississippi rivers to New Orleans and from there to Boston and New York. Miners began to flock to Granby, and in the spring of 1857 Blow & Kennett secured from the Pacific Railway Company the lease of the Granby section and erected eight large furnaces on the land, and as the company had ample capital to buy and smelt all the lead produced, a great stimulus was given to mining from 1858 to 1861, there being from ten to twelve millions of pounds produced and smelted annually. The breaking out of the civil war in 1861 caused a suspension of the industry and scattered the miners, and nothing more was done until 1865, when the Granby Mining & Smelting Co. was organized with H. T. Blow as president. The furnaces were rebuilt and from that time to the present, the operations of the company have been constantly widening out, while their business record is one of unbroken success. On this vast tract of mineral land at Granby, there are from 400 to 500 men who get employment in the various capacities in the mines, mills and smelters. Some of the buildings of the company are historic and the old brick smokestacks that were built

before the war, still protruding through the roof of the building and apparently as sound as ever. There is also in constant daily use in the mill probably the oldest pair of rolls in the State, being shipped from Pittsburg, Pa., in 1855. They are the old lever rolls in use at that time in place of the spring rolls at present used. The Blake crusher in use was brought from Boston in 1870 and is apparently in as good condition as ever. In the days immediately after the war, eight "solid back" Scotch hearths were operated, but now only three "water back" furnaces are operated and the daily output from these three is much greater than it formerly was from the entire eight. A large part of the ore smelted by the company used to be hauled from Joplin and Oronogo in wagons and the company still buys large quantities of lead in addition to what is produced on its own lands. The lead bought off the ground is delivered at the smelters by the Frisco railroad, whose tracks and switches run over the Granby land and direct to the smelters and mills of the company. As a relic of the "good old days" a pig of lead smelted by Blow & Kennott in 1860 can still be seen at the old furnaces. Connected with the smelting works and mills, is a complete machine shop and boiler works for the manufacture of boilers and the repair work on the many engines and boilers in use at the mines and mills of the company. Under the same roof with the old furnaces is a ten-ton concentrating plant for the treatment of refractory ores and it is claimed to be the only mill in the entire district that will successfully separate blue mineral, drybone, silicate and carbonate of zinc with other minerals. This is accomplished largely by the use of a separate screen for each jig. Nothing is sent direct to the rougher and everything is returned to the screens for thorough separation after crushing. The system in use requires a slow feed, making the capacity of the present mill small, but it accomplishes the work for which it is designed and an inspection of it might prove beneficial to those who have refractory ores to handle.

The system under which the company operates its lands at Granby is most liberal and differs from that of any other company in the district in many respects. Being the oldest company in the district, its mining operations have gone through all the gradations from the crudest methods to the most improved of the present day, and while they have some of the oldest machinery to be seen in the district, they have at the same time mills that are equal to any in operation in the mineral camp with the very latest improvements in arrangement and processes for cleaning the ores.

The relations between the company and its employes and tenants

which began in the early days when the employer and employe knew each other better than in these busy days of mining, have continued undisturbed on the old lines and have drawn to Granby a very permanent mining population and as before noted, three generations of one family can be seen working side by side at the furnaces and mills of the company. The company offers special inducements to reliable men to locate on its land by giving to each miner the free use of one acre of ground for a home and garden, and some of these homes are models of neatness and comfort. No ground rent or charge of any kind is made for the use of this land, and should the head of the family, for any reason be obliged to leave Granby, his family are never disturbed in their occupancy as long as they choose to remain.

To operators able to build a mill, the company leases ten lots at a special royalty on both lead and zinc ores. The company requires its lessees to sell them all the zinc and lead ore produced which appears satisfactory as it is purchased on assay on the seven to one basis for zinc ore running 60 per cent., while Joplin prices are paid for lead ore. To encourage industrious miners without capital, the company pays a bonus of 50 cents per foot for cleaning out and sinking old shafts deeper and \$1.00 per foot for sinking new shafts from the surface, and if water is encountered in sinking they furnish a pump, boiler and engine free of charge. They will also furnish the fuel to operate the pump, provided the parties sinking the shaft agree that when they strike ore in paying quantities they will set aside 10 per cent. of their output to reimburse the company for the fuel until it is paid for. If they fail to strike ore in paying quantities, the company makes no charges for the fuel used. The company also furnishes steam hoisters at a rental of 50 cents per day. The oldest mines at Granby on lands belonging to this company are located on the prairie south of town, where hundreds of shafts are to be seen. During the past eight years, extensive drilling has been done and the ore runs have been definitely located, so that it is a matter of almost a certainty that ore in paying quantities will be developed on the lots which the company has prospected. At the first shaft put down on the prairie there is a drift at 90 feet below the surface which is said to run over a quarter of a mile due west. It was cut years ago, but was well supported by timbers and it has been open and safe to work in ever since, and on the "Sun Set" tract, operated by this company, *there is a drift of the same or greater length running northeast and southwest.* The "old quarry" on the prairie two miles south of the city, *is also one of the sights of the Granby camp. In the old days,*

silicate was quarried here from the surface and I am informed that over 1,000,000 pounds have been taken from this one hole. Silicate, lead and zinc ores are found at various depths on the land ranging from about 70 to 100 feet, but here as is demonstrated at other camps, large bodies of zinc ore have been located by the drill at a much greater depth. Deep drilling has been done very extensively the past year by the Granby company, and good runs of ore have been penetrated at most of the points from 100 to 125 feet from the surface. It is said that within 100 feet of the new Mt. Pleasant mill recently erected by this company, five drill holes out of seven penetrated excellent zinc ore from 285 to 305 feet, but at this level neither lead or silicate ore was found. There does not appear any bad water proposition on the Granby company's land, and no shaft in operation has more than one pump in it. The Neosho pump appears to be the favorite and are in use all over the Granby camp.

The Mt. Pleasant mill, owned by the Granby company, was erected during the past year, and is of a daily capacity of 120 tons. The mill was built to do custom work for the tenants of the company, and it is equipped with every modern appliance. The rough ore is hauled to the mill in wagons, the road from the scales being elevated so that wagons go into the second story of the mill on a level and the ore is dumped to the crusher platform below. The storage bins for the deposit of the rough stuff have a capacity for about three days' run, so that in the event of stormy weather and bad roads, there is always rough ore on hand to run on. The mill has its own complete electric light plant, and the marble switch board in the power room is one of the finest made. In this mill everything goes to a screen, and is sized up and only rough stuff goes to the rolls. There are five Wilfley tables for fine stuff, the coarse stuff going to chat rolls and the fine stuff from the three roughing tables is carried in elevators to the finishing tables, and one unusual feature of the mill is a return elevator to carry the tailing water back to the Wilfley tables, as it has been found that this water carries as high as $1\frac{1}{2}$ per cent. of ore. The company makes a charge of 65 cents per ton for milling ore for its tenants, and each customer's ore is kept in a separate bin, assayed and sold separately. The company maintains a complete assay office at the mill, and a daily record is kept of all the ore delivered, milled and sold. To still further encourage industrious miners, the company will either buy the rough dirt as it comes out of the ground, they will clean it for the producer at a fixed charge of 65 cents per ton, or they will buy the cleaned ore.

The Mascot Mining Company.

This company operates a ten-acre lease on the Granby company's land about two miles to the southwest of Granby at a royalty of 20 per cent. The company is composed of W. H. Green, John Blunk, R. Kugle and H. F. Meadows. This is the only company operating a steam concentrating plant on the Granby land that is operating on the royalty system. Two shafts have been sunk on the lease, and they report ore from 75 to 145 feet, but mining at about the 100-foot level. I am informed that no part of the ground which they have cut runs less than 10 per cent. ore, and much of it runs as high as 18 per cent. They are drifting on a face of ore about 70 feet wide and from 12 to 16 feet high, and have proven it to be one of the best producing properties of the district. Their mill is of a 100 tons daily capacity, modern and complete.

LITTLE FOUR MINING COMPANY.

The "Little Four" company is composed of W. H. Hamilton of Clinton, Ind., W. F. Carter, G. C. Haysler and R. H. True of Clinton, Mo., with Finas Arnet as superintendent. They control a lease on five lots of the J. B. Davis land about two miles to the southwest of Granby, and have three shafts in which zinc ore has been developed. Their present working level is at the depth of 100 feet, but they have reported a very fine body of ore developed at the 160-foot level. This mine is located only a few yards to the north of the "Mascot" mine, which is the greatest producer of the district, and apparently a very bright future. Their concentrating plant is being remodeled and new machinery added preparatory to expected steady operations.

SLOW GO MINING COMPANY.

The Slow Go Mining Company is composed of E. D. Demasters and H. Henman. They have developed lead, silicate and drybone ores on a tract of land situated about eight miles south of Joplin, in Newton county, and have one shaft sunk to the depth of 100 feet. The mining improvements consist of one horse hoister and two hand jigs.

BALE LEASE.

The Bale Lease covers ten acres situated about eight miles to the south of Joplin, in Newton county, and is operated by E. D. Demas-

ters. He has three shafts sunk ranging in depth from 27 to 100 feet in which lead, drybone and silicate ores have been developed. The ore here is cleaned ready for market over four hand jigs.

JOHN B. DAVIS LAND.

The John B. Davis land that is open for mining purposes comprises 35 acres situated about two miles to the southwest of Granby, Newton county, on which there are four shafts reported sunk ranging in depth from 90 to 235 feet with fair zinc ore developed. In the deepest shaft there is said to be a 35-foot face of very excellent ore developed in hard ground. These mines are located very near the famous "Mascot" mine and the indications are that very profitable mining will be had. The mining operations here have been somewhat limited, but during the past fiscal year the value of the production reached \$14,850. The land is under the management of N. Y. Davis who reports the following operators: Little Four Mining Co., Homestake Mining Co. No. 2, and M. & M. Mining Co.

SPRING CITY MINING COMPANY.

The Spring City Mining Co. is a corporation, incorporated under the laws of Missouri in 1892 with capitalization of \$5,000. Ed. Zelliken of Joplin, Mo., is its president and J. W. Allen of the same city, secretary and manager. The company owns a lease on forty acres of mineral land situated at Spring City, Newton county, and about seven miles to the south of Joplin on which there are five shafts sunk ranging in depth from about 100 to about 140 feet, the principal working levels being at from 105 to about 135 feet. Very extensive ore bodies have been developed at about the 105-foot level from which large turn-ins have been made of both lead and zinc ore. The Spring City Company pays royalty of ten per cent. on all minerals mined to Mr. J. W. Allen and charges operators on the land a royalty of 20 per cent. Following are the operators on the Springs City lease:

La Salle Mining Company.

The La Salle Mining Company is incorporated under the laws of Missouri with a capital stock of \$25,000 and is composed of J. W. Allen of Joplin, who is general manager, H. L. Angell of Chicago, secretary and treasurer and E. S. Towning of New York. The company owns a lease covering eight lots of the Spring City lease and has four shafts ranging in depth from 106 to 125 feet, and has been *operating on a face of ore about fourteen feet high in ground that is*

sufficiently solid that no timbers are necessary for the support of the drifts when properly cut. This company recently drilled from the bottom of one of its drifts and developed a deposit of zinc ore immediately below of 32 feet in thickness. The shaft is now being sunk deeper from which to work the new discovery. The company employs about 18 men, while its production has been about 35,000 pounds of lead and about 20 tons of zinc ore. Since the organization of this company in 1892, there has been mined and sold, ore to about the value of \$350,000. The company has erected and put into operation one of the most complete concentrating plants in this section of the district, supplied with all the appliances and machinery necessary for successfully handling the ore.

Jay Bird.

The "Jay Bird" mine is the property of E. M. McAdams, F. C. Godding, R. A. Thornton and F. A. Fant, all of Joplin, Mo. They control two lots of the Spring City lease at a royalty of twenty per cent. and have a fair face of ore developed at about the level of 135 feet. For greater convenience, a new shaft is being sunk on this ground. The ore is of a high grade and very satisfactory productions have been made. The mine is managed by F. C. Godding.

BIG GRIT MINING COMPANY.

The Big Grit Mining Company is composed of F. L. Wight, L. D. Shearer, W. H. and J. V. Fleming of Neosho, Mo., and G. W. Harrison of Newtonia, Mo. The company owns a lease on 80 acres of land belonging to F. L. Wight, and situated about one mile to the northwest of Newtonia, Newton county, at a royalty of ten per cent., and has eight shafts sunk ranging in depth from 30 to 105 feet. A fine grade of zinc ore has been developed in the deeper shaft at various levels from 45 feet down with ore yet showing in the bottom of the shaft. This is a new mining property, with prospects very good for their opening up a profitable run of ore. At the present time they have only a steam hoister and one hand jig in use.

HONEY LOCUST.

This company is composed of J. H. Trent and G. W. Harrison of Newtonia, and adjoins the "Big Grit" on the east. They have one shaft down to the depth of 75 feet, and are getting the same grade of zinc ore that is found by the "Big Grit" company.

HENRIETTA MINING COMPANY.

The Henrietta Mining Company is composed of O. H. and W. H. Picher of Joplin, Mo., J. W. and John Reinmiller of Neosho, Mo. They own a lease covering 180 acres of mineral land situated at Saginaw, a station on the Kansas City & Southern R'y, and about six miles southeast of Joplin. This company pays to the land owners a royalty of ten per cent., and does principally a leasing business, charging the operators twenty per cent. There are some ten shafts sunk on the lease ranging in depth from about 30 to 80 feet with a showing of lead, zinc and silicate ores. The principal mine being operated on the lease is the Wonderful 8, which was purchased of Reinmiller, Picher and others by Waterhouse & Co. during the past fiscal year. A concentrating mill has been completed recently at this mine, and the operations are said to be fairly satisfactory.

ROARING SPRINGS LAND AND MINING COMPANY.

The Roaring Springs Land and Mining Company owns the fee of 208 acres of mineral land situated just to the south of Joplin on which there have been four shafts sunk in which ore has been developed, ranging in depth from 120 to 145 feet. Both lead and zinc ores are mined from the land, and during the past fiscal year the production of zinc was 1,552 tons and the output of lead ore 329,280 pounds, with a total valuation of \$59,165.92. Two complete concentrating mills were in operation a portion of the fiscal year, one mill of 100 tons daily capacity was erected during the year, and a new mill of 150 tons daily capacity is now in course of erection. The principal improvements aside from these mills are two hand jig plants, five steam pumps, seven steam hoisters and five horse hoisters. The business of the company is in the hands of D. C. Hoover of Joplin, who does principally a leasing business, and we note the following operators: A No. 1 Mining Co., Keystone Mining Co. and the Peach Tree Mining Co.

ST. PAUL MINING COMPANY.

The St. Paul Mining Company owns a lease on 160 and the fee of forty acres of mineral land situated south of Joplin, in Newton county, on which there have been six shafts sunk, in which ore has been developed. These shafts range in depth from 70 to 140 feet, and

during the past fiscal year yielded lead, zinc and silicate ores to the value of \$73,470.30. The mining improvements on this land consist of two complete concentrating mills, one of which was erected during the past year, four steam pumps and six steam hoists. The property is under the management of Clay Gregory of Joplin, who reports the following operators on the land: F. C. Golding, Raines & Co. and Sneed & Co.

SHOAL CREEK MINING COMPANY.

The Shoal Creek Mining Company is composed of J. B. Reding, J. W. Phillips, Wm. Brandli, F. N. Ford and Wm. Deems, A. P. and Jas. A. Clark, all of Joplin, Mo., Mr. Deems being in charge of the mining operations. They control a lease at ten per cent. royalty on forty acres of mineral land situated about three miles south of Joplin and owned in fee simple by Messrs Freeman, Price & Johnson. There are 21 shafts sunk on the lease ranging in depth from 50 to 135 feet, seven of which have developed ore in either open or hard ground. Both lead and zinc ores are produced and the deposits usually occur about fourteen feet in thickness. The mining improvements consist of one 3-inch steam pump, two steam hoists, five horse hoists and five hand jigs.

SOUTH SHOAL CREEK MINING COMPANY.

This company is composed of D. D. Reding, A. P. Clark, J. T. Hurt and Frank Clark. The company owns the fee of forty acres of mineral land situated about five miles south of Joplin, on which there have been 12 shafts sunk ranging in depth from 10 to 80 feet, four of which have developed lead ore. In the 80-foot shaft lead occurs from 30 to 60 feet below the surface, and with one man in the ground it is reported that a weekly production of 10,000 pounds is made. There are three horse hoisters and three hand jigs in use.

BENNETT & WHITSELL.

This company controls a lease on five acres of mineral land about two miles south of Reeds, Jasper county, the same being under the management of Frank Bennett of Carthage, Mo. One shaft has been sunk to the depth of 61 feet, which shows silicate, zinc and lead ores.

LAWRENCE COUNTY.

BOSTON-AURORA ZINC COMPANY.

The Boston-Aurora Zinc Company is a corporation with a capital stock of \$3,200,000, \$800,000 of which is preferred stock, while \$2,400,000 is common stock. This company purchased the fee and leases of 528 acres of land situated about one mile to the east of Aurora, formerly known as the Minor & Rogers 80-acre tract, and the remaining 458 acres formerly known as the "Fliurnoy" land, the latter tract being undeveloped. The 80-acre tract mentioned is by far the greatest producer of zinc ore of any tract of land yet developed in the Aurora district; it produced during the past fiscal year 4,275½ tons of zinc ore and 22,310 pounds of lead ore, which sold for the sum of \$139,286.17. There are five shafts sunk on the land ranging in depth from 71 to 135 feet, in which zinc ore has been developed. The mining improvements consist of two complete concentrating plants that were in operation during the year, two steam pumps and five steam hoisters. These mines are under the management of Patrick O'Shea of Aurora, Mo.

DECATUR LEAD AND ZINC COMPANY.

The Decatur Lead and Zinc Company is incorporated under the laws of Missouri, with a capital stock of \$100,000. Albert Barnes of Decatur, Illinois, is secretary and general manager, while Jacob Thielen of Aurora, Mo., is superintendent. The company is operating a tract of mineral land situated about three-fourths of a mile to the east of Aurora, containing forty acres, on which there are three shafts sunk ranging in depth from 30 to 140 feet, in which ore has been developed. Both lead and zinc ore are mined and during the past fiscal year the value of the productions reached \$5,060.22. The following companies are reported operating on the land: Summers & Sympson, Jones & Co., Sprance & Co., Douglas & Thomas and the R. W. R. Mining Co. While the mining improvements consist of one complete concentrating plant, one hand jig plant, one steam pump, one air compressor, one steam hoister and one horse hoister.

CAMPBELL AND COMPANY.

Campbell & Company own forty acres of mineral land situated about one and one-half miles to the northeast of Aurora, which is lease in lots to operators, and one shaft is reported producing

at the depth of 100 feet. The value of the production here for the past fiscal year was \$5,765. It is on this land that probably the deepest mineral in the Aurora district has been encountered. Wheat & Loy have fifteen lots of this land leased, and in drilling they struck very rich ore at the depth of 200 feet, which is reported to have continued on down to the depth of 320 feet. Their new shaft has reached the 200-foot level, and the ore encountered at that depth is all that the drill cuttings showed it to be. At one other point on the land, ore was struck by drill at the depth of 300 feet, and is reported to have continued in ore for a distance of 40 feet. The shaft at this point is down to the depth of 120 feet. A complete concentrating plant is expected to be erected at each of these developments. This property is under the management of Otto Schmook of Aurora, Mo.

OZARK RANGE MINING CO.

The Ozark Range lease is situated a short distance from the city of Aurora and is the property of John A. Williams and P. McGannon of that city. The company's lease covers 52 acres of mineral land on which there are erected three complete concentrating mills besides there are three steam hoisters, two horse hoists and six hand jigs, while the value of the zinc production for the fiscal year amounted to \$21,953.68. There are five shafts in operation on the land ranging in depth from 80 to 90 feet and the following companies are operating on the lease: World-Herald, Hays City Mining Co., Ewing & Co., Sherwood Mining Co. and the Indiana Mining Co., while John A. Williams is general manager.

UNITED ZINC COMPANY.

The United Zinc Company which has been operating extensively in the Joplin district recently purchased of the Rinker Lead & Zinc Company of Aurora, Mo., the fee of 84 acres of mineral land situated just to the east of that city and has now a reported investment of \$110,000 at the Aurora camp. There are twenty shafts sunk on the land to an average depth of 80 feet, all of which are producing zinc ore in a very satisfactory manner. The improvements on the land consist of one complete concentrating plant, ten hand jig plants, eight steam pumps, seven steam hoists and thirteen horse hoists. The production from this property was increasing very nicely at the close of the fiscal year under the management of C. C. Playter, who reported the value of the output for the year at \$32,912.91.

TERRE HAUTE LAND & MINING COMPANY.

The Terre Haute Land & Mining Company is composed of Louis Henweg and others of Terre Haute, Ind. The company owns a lease of 140 acres of mineral land situated to the east of Aurora, with Paul Schmook of Aurora as superintendent. The land produces lead, zinc and silicate ores, and during the past fiscal year there were mined and sold of these ores to the value of \$10,536. Three shafts are reported sunk on the lease, in which ore has been developed ranging in depth from 120 to 182 feet, while the mining improvements consist of eight hand jig plants, one steam and one nine-inch ft pump, three steam hoisters and one crusher. This property is located in about the center of the Aurora district and the ore is reported richer as depth is gained. The operators on the lease are as follows: Paul Schmook Mining Co., which is the heaviest producer, Oriental Mining Co., Rassieur Mining Co., Lulu Mine, and Massafra Mine.

KENTUCKY MINING COMPANY.

This company is incorporated under the laws of Missouri, with J. C. Van Riper of Aurora, Mo., vice-president and general manager. The tract of mineral land owned by this company contains 20 acres situated about one mile east of Aurora and has six shafts sunk ranging in depth from 45 to 158 feet in which ore has been developed. The ground carries lead, silicate and zinc ores, and during the past fiscal year the value of the productions reached \$31,634.65. The company does only a leasing business and we have reported the following operators on the land: Torker & Co., Chas. L. Byrd & Co., Bradford & Co., O. Wood & Co., and the Ohio Zinc Co. The mining improvements belonging to these operators consist of one concentrating plant, three hand jig plants, four steam pumps, four steam hoisters and three horse hoisters.

SPHALERITE MINING COMPANY.

The Sphalerite Mining Company owns 7 acres of mineral land situated about one mile east of Aurora and has four shafts in which zinc ore has been developed ranging in depth from 50 to 110 feet. This property has been known as the "Nickle Plate" until about one year ago, when the present company purchased it. There are two complete concentrating mills on the land supplied with the necessary

machinery and appliances for treating the ore, one of which is supplied with an air compressor, two steam pumps, three steam hoisters and one horse hoist. The ground yields lead, zinc and silicate ore and during the past year there was ore produced to the value of \$10,837.11. The companies operating on the land are the Chicago Aurora and Ramey & Co., while the property is under the management of T. A. Brinkerhoff of Aurora, Mo.

JOHN SCHMOOK LAND.

This tract of mineral land contains 40 acres situated about two miles to the northeast of Aurora and is owned by the John Schmoock heirs, with Otto Schmoock as superintendent. Only a leasing business is done and there are three shafts reported sunk to the depth of 100 feet in which ore has been developed. The mining improvements consist of three hand jig plants, with six hand jigs and three horse hoisters.

PETER STEWART LAND.

This mining property comprises forty acres and is owned in fee simple by Peter Stewart of Aurora, Mo. The land is situated about one mile to the north of the city of Aurora and has four shafts sunk on it ranging in depth from 90 to 100 feet, all of which are producing. The improvements on the land consist of two lift pumps, four steam hoisters and twenty hand jigs while the production for the fiscal year sold for \$40,778.85. The operators on the land are as follows: W. L. Bigelow, Clark & Co., Scott & Co. and Spell & Co.

DALBY & MOSES.

Dalby & Moses own forty acres of mineral land situated about one mile from the city of Aurora on which there are three shafts sunk to an average depth of 100 feet in which zinc ore has been developed in fair quantities. The company does only a leasing business and among the operators, the following are reported: E. K. Johnson of Aurora, Mo. Perkins & Co., of Providence, R. I., and Wm. Smith and others of Aurora, Mo. These operators have five steam hoisters in use, five steam pumps, fourteen hand jigs and pay the land owners a royalty of fifteen per cent. on all minerals mined.

WENTWORTH MINING COMPANY.

The Wentworth Mining Company owns a first lease on twenty acres of the Weaver land situated about three miles south of Ozark and pays a royalty of ten per cent. on all minerals mined. There are three shafts sunk to an average depth of 75 feet in which lead ore and some silicate ore have been developed. The company has erected a crusher plant and clean the ore over hand jigs. Like the other mining developments of this section, these are new and the productions so far necessarily light.

SPRING RIVER MINING COMPANY.

The Spring River Mining Company is incorporated under the laws of Missouri, and capitalized at \$150,000, with Mr. Wm. C. McClure of Michigan president, while Mr. A. J. Stevens of Stotts City, Mo., is treasurer and general manager. The company is located at Stotts City, Lawrence county, and owns thirty acres in fee simple on which its concentrating plant is in operation, and 177½ acres a little to the northwest and west. There are three shafts sunk on the 23-acre tract ranging in depth from 93 to 200 feet. In the principal working shaft a drift about 600 feet long has been cut which averages about 24 feet wide and about 40 feet high, the working level being at about 180 feet. The shaft has been sunk to the depth of 200 feet preparatory to taking up a stope the full length of the drift. The ground is hard and carries a high grade of zinc ore, and no timbering is required for the support of the drift if properly cut. The company employs about 20 men, and when in regular operation produces about two car loads of zinc ore per week. The concentrating plant is a very complete one in every respect and is supplied with 120 horse power boiler capacity, three engines, two crushers, three sets of rolls, screens, elevators, one air compressor, one steam hoister and one 8-inch lift pump. The company has also a pumping station on Spring river, two and one-half miles away, from which water is forced through a pipe to the mill for general milling purposes.

SOUTHWORTH MINES.

This property consists of a lease on 13 acres at a royalty of 15 per cent. on all minerals mined, of land owned in fee simple by the Stotts heirs. One shaft has been sunk to the depth of 175 feet in hard

ground and there has been about 500 feet of drifting done with good results, and the company is now preparing to take up the stopes of the drifts. They have a very complete and modern mill supplied with 190 horse power boiler capacity, 90 horse power engine, two large crushers, three sets of rolls, screen, rougher, cleaner and sand jigs, one steam hoister and a 124 light dynamo. The plant is a good one, and was erected at a cost of about \$9,000.

HENRY BRUMBECK.

This property consists of a lease on fourteen acres of mineral land at a royalty of ten per cent., and is a part of the lands belonging to the Stotts estate. One shaft has been sunk to near the 200-foot level, from which considerable drifting has been done, and the workmen are now taking up the stope with fair results. Like the other mines of this locality, the ore is of a high grade, and brings about the top of the market. The ground is hard, requiring no timbers for the support of the drifts when properly cut. There is a complete mill in operation equipped with all the necessary machinery and appliances for handling the ore, and about twenty-five men are employed. The plant is among the best in the camp and was erected at a cost of about \$10,000.

KEYSTONE MINING COMPANY.

This company is composed of Geo. W. Waddell and A. J. Webber of Wilkesburg, Pa., and Mrs. A. Hamer of Tiff City, Mo. The company has a lease on ten acres of the Stotts estate which it secured from the Mt. Vernon Mining Company at a royalty of ten per cent. The ore occurs in hard ground, and at about the same depth as at other mines of the Stotts City camp. When in regular operation the company employs about twenty men and produces about 50,000 pounds of zinc ore per week at single shift work. This company has erected an excellent concentrating mill, supplied with one 80 horse-power boiler, two engines, one sixteen-inch crusher, three sets of rolls, steam jigs, screen, elevators, steam hoister and one ten-inch lift pump. The property is in the personal charge of Geo. W. Waddell, whose local headquarters are at Stotts City.

BOSTON-LOY MINING COMPANY.

This company is composed of Loy Bros. of Aurora, Mo., and F. A. Smith and others of Boston, Mass. Their lease covers 13½ acres of land belonging to the Stotts heirs at the very low royalty of five per

cent. on all minerals mined. They have two shafts sunk to the depth of 180 feet, in which there has been developed sixty feet of ore. The ground is hard and carries both lead and jack. Their weekly turn-in reaches about 40,000 pounds of zinc ore and about 5,000 pounds of lead. The mill in operation is of about 75 tons daily capacity, and is supplied with the necessary machinery and appliances for handling the ore. There are fourteen men employed, and the business of the company is in the hands of W. V. Patten of Stotts City.

THE ILLINI MINING COMPANY.

The "Illini" is the property of Jack Davis and others. They have eleven acres leased of lands belonging to the Stotts estate, and pay a royalty of fifteen per cent. on all minerals mined. One shaft is down to the depth of 175 feet, at which level the greater portion of the mining is done. Like the other mines of this camp, the ore occurs in hard ground, and is of a high grade. This mine has been a splendid producer in the past and from reports received a great deal of profitable mining can yet be had. A complete concentrating mill is on the lease equipped with necessary machinery, etc., to successfully treat the ore.

JULIA WEST MINING COMPANY.

The "Julia West" belongs to Jack Davis of Mt. Vernon and others. Their lease covers twenty acres of mineral land owned in fee-simple by the Stotts estate, and they have one shaft down to the depth of 225 feet, with a good deposit of lead and zinc ore developed in hard ground. The mine is new, but one of the most promising in the camp. The weekly production reaches from 25 to 30 tons of zinc ore and from 20,000 to 30,000 pounds of lead. They have completed and in operation a new and complete concentrating plant supplied with one 100 horse-power boiler, a 70 horse-power engine, one 16-inch crusher, steam jigs, three sets of rolls, elevators, two screens, steam hoist and a 10-inch lift pump. Grant Hart of Stotts City has the management of the mines.

REEL-HOUSTON MINING COMPANY.

This company is incorporated under the laws of Missouri and capitalized at \$50,000, with D. D. Houston of Paris, Ill., president, H. H. Quinn treasurer, E. L. Reel of St. Louis, Mo., secretary and J. T. Willis of the same city superintendent. The company has 14 acres

of mineral land leased at a royalty of 15 per cent., belonging in fee simple to Worley & Biddlecomb, and situated about one and one-half miles to the northeast of Wentworth, being in Lawrence county. They have one shaft sunk to the depth of 100 feet, and have developed a very fine body of zinc ore at the 89-foot level in hard ground. The mine is a new one, and they have just completed a crusher plant supplied with a rougher, crusher, one set of rolls, while the ore is cleaned over hand jigs. They have a steam hoister in use, and the dirt is broken with steam drills. This is a very promising mining property, and we expect to see good productions from it.

CHRISTIAN COUNTY.

Considerable activity has been witnessed in Christian county during the past fiscal year in an effort to develop the mineral known to exist in that county and the work so far has been of an encouraging nature. About three miles south of Ozark, the Ozark Mining Company controls a lease on 120 acres of mineral land and has two shafts sunk, one to 55 and the other to the depth of 125 feet in which lead ore and some zinc have been developed. This company is composed of T. L. Robertson, Z. A. Johnson, Frank Howell and Wm. Woody, with Mr. Howell as superintendent and Mr. Johnson general manager. The ore occurs in medium hard ground and the faces found are from eight to thirty feet in thickness. The ground carries lead, zinc and silicate ores but lead is practically the only mineral mined as the better runs of zinc ore are said to be at a greater depth, and which, the company is now preparing to develop by sinking the shaft deeper. The mining improvements here consist of a complete concentrating plant of 100 tons daily capacity supplied with one 80 horse power boiler, one 65 horse power engine, a 16-inch crusher, three sets of rolls, steam jigs with a five-cell rougher and a six-cell cleaner, elevators, etc., and was completed and put in operation in August, 1900. Those prospecting on the land are as follows: A. Cleaver, J. J. Horton, J. Entsler and Bond Bros. The land on which this company operates belongs to T. Weaver of Ozark, Mo., and others.

SOUTHEAST MISSOURI.

Eventually the mineral belt of this section of the State will be extended by further development; but at present lead mining is confined to Franklin, Jefferson, Madison, St. Francois and Washington counties. In view of the present development and product of these counties and the fact that the French made the discovery and commenced mining as far back as 1720 and that long before that the Chicasaw Indians were known to supply lead to the early explorers which they had mined in this section; it is a matter no little surprise that development has been so slow. There are several reasons however for this apparent backwardness; the first of which is due to the long continued primitive methods employed and the absence of any knowledge of the great bodies of disseminated lead ores hidden away in the rocks far below the surface, as indeed the character of mining up to 1869 may be said to have been exclusively surface mining. It is claimed that the disseminated lead ore was brought to light through the agency of the old fashioned churn drill. In the year 1869 the St. Joseph Lead Co., having been organized and coming into possession of that valuable tract of land which now embraces within its limits the beautiful little city of Bonne Terre, introduced the diamond drill; this character of test especially in this region was most fortunate, as it established beyond question the presence of immense bodies of very rich ore. The management of this company being noted for their long heads and knowing a good thing was in its grasp, did not go hunting with a brass band, but with the diamond drill it hunted this section thoroughly, all the while acquiring more land, increasing its plant and production and making no noise about it. When it was announced only a few years since that Missouri had the largest plant and a company producing more lead than any other one company in the world, it was news to nineteen-twentieths of our citizens. For many years this one concern did the great bulk of the mining done in this section. Since 1890 new companies have entered the field, but not until the last two years has the growth been a rapid one. In considering the number of companies in this section it will be well to remember that the opening of its mines and the erection of plants and the amount of mineral land controlled by each, is vastly different from that which obtains in other sections of the State. *Here we have very deep shafts of three times the dimensions which*

rule in other parts of the State; the water to contend with requiring the most powerful pumps and the machinery needed of the most expensive kind. The outlay in the preparation for operating is so very great that good business management demands a large body of land for future work to justify the large expenditures, so that mining in this section means an immense outlay and all else connected with it is necessarily on a large scale. The detailed operations in the several counties will be found to follow.

ST. FRANCOIS COUNTY.

This county for the past year had an output of lead ore amounting to 54,037 tons or 69 per cent. of the total lead product of the State; the value of this product was \$2,447,796. There were 17 shafts operated of an average depth of 329 feet, and 1,966 men employed in and about the mines. This shows an increase compared with the previous year of 4,980 tons of lead, and an increase in the value of the product of \$327,642. There were three more shafts operated and 344 more men employed.

The current year will doubtless show a large increase in product, value, number of shafts operated and the number of men employed, due to the sinking of new shafts, the erection of new and very extensive plants, etc.

The companies operating this last year were as follows:

The Central Lead Co., Flat River, Mo.

The Columbia Lead Co., Flat River, Mo.

Desloge Lead Co., Desloge, Mo.

Doe Run Lead Co., Doe Run, Mo.

St. Joseph Lead Co., Bonne Terre, Mo.

The Union Lead Co., Flat River, Mo.

Each of the above companies were fully described in our last report. The Columbia and the Union had not produced anything and but fairly commenced operations during our fiscal year just closed. All are splendidly equipped, as may be noticed in our table on this county.

The St. Louis Smelting and Refining Co.—Located at a station called Frisco on the Mississippi River & Bonne Terre R. R.; has purchased what is known as the Taylor property, and has erected and equipped a plant that has not an equal in the world. The cost of the plant alone is over \$1,000,000, but the cost of the land we have been unable to find out. Following is a description of this plant:

One of the most complete and interesting power and lighting installations in the United States has been built by this company.

There are a great many coal and copper mines operated by electricity, but this is the first lead mine that is so equipped. Economy of operation is one of the first and most vital considerations in this particular branch of mining, as the lead ore is about 450 feet below the surface and the lead itself is very finely disseminated, the tenor being generally 6 to 10 per cent.

The ore is brought up to the surface in cars holding one ton each at a speed of 900 feet per minute, by electric hoists, and dumped on the grizzly bars, where the smaller pieces fall into a bin underneath; the larger pieces are fed into crushers which are run at 250 revolutions per minute. There are 7 crushers at each mine, belted to a jack shaft, which is driven by a 100 horse-power electric motor, placed in the hoist-house behind the electric hoisting machines. When running at full capacity each hoist and crusher motor takes care of 600 tons of ore per day. When the ore is crushed it drops into a bin, underneath which travels a belt conveyor connecting with the bins in the main concentrating mill. The ore from other mines is all brought to this bin, which is the central storage supply for the mill; it is then fed into crushing rolls from these bins which break it into pieces about one-eighth inch by one-quarter inch at the rate of 1,000 tons per day. This crushed ore goes to the jigs, which separate the lead from the rock in water. It is handled by 12 centrifugal pumps driven by direct connected electric motors. Another centrifugal pump driven by an electric motor is used to keep the water out of the cut where the cars come in to receive the waste rock, which is called "chats." The lead concentrates are about 70 per cent. lead and go from this mill to the roasting furnaces and then to the smelter and refiner.

The center of distribution of ore is at No. 2 mine; a trolley line about one mile long connects No. 3 mine and a line one-half mile long connects No. 1 mine with this point, there being three shafts in all. It also connects with the main line of the Mississippi River & Bonne Terre railroad. There are about 3 miles of single track, equipped with oak ties and 60-pound rails. There are two trolley wires overhead, positive and negative, because the current is used in the mines for lighting and power, and the danger of grounding would be great with a single trolley line and rail return. The trolley wires are suspended for the most part by side poles and brackets. General Electric Company No. 00 grooved trolley wire is used throughout; also the standard fittings and suspensions for this style of line, with the exception of the crossing which had to be made special, on account of the proximity of the two trolley wires. At all turnouts and some switch

span wire suspensions are used. The cars are drawn by 20-ton locomotives, equipped with air brakes and double trolleys. There is no arcing noticeable when the trolleys pass the cars on account of having a smooth, uniform trolley wire surface, which is important where machines draw large amounts of current. The locomotives haul the ore from the mines to the central storage bins, the waste rock from the mill and concentrates from the mill to the railroad siding, and the coal from the railroad to the power-house dump.

The company has also a machine shop (where all repairs are made) which is run by a 10-horse power electric motor, and a carpenter shop and saw-mill run by a 15-horse power electric motor. There is also a 50-horse power electric motor operating a triplex pump at the river, which is 3,000 feet from the mill. It delivers 1,000 gallons of water per minute which is used in separating the ore.

All power is furnished from the central power-house, which has a railroad siding alongside the boiler room, where the coal is dumped. The boiler room contains four 300-horse power Babcock & Wilcox water-tube boilers, and the engine room one 850-horse power cross-compound condensing Corliss engine, direct connected to a 250-Kilowatt, 500-volt compound wound generator; the balance of the power from this engine is used to drive the jack shaft in the mill, which in turn drives all the jigs and rolls. There is a 350-horse power cross-compound condensing Corliss engine direct connected to a 250-Kilowatt compound wound generator, and a cross-compound condensing tandem Corliss valve air compressor, capable of compressing 250 feet of face air per minute to 100 pounds per square inch. The air is used in operating rock drills in the mines and signals overhead. There is also a storage battery of 250 15-plate, type F cells, and booster with motor, direct connected, having a capacity of regulating to the extent of 280 amperes on a variable load, having momentary fluctuations.

The switch-board is made from blue Vermont marble, and is equipped with quick-break switches and magnetic blow circuit breakers. There are two generator panels, three feeder panels and two storage battery panels.

The storage battery gives out from 70 to 80 per cent. of fluctuating load, namely, when a hoist or a locomotive starts, and maintains an absolutely constant voltage at the main bus-bars in the following way: The variable load bus-bars are not connected with the main bus-bars, except through the booster's series field when in operation. The series windings of the booster fields are wound in opposition to the shunt field windings, and consequently when there is a call for current on the variable load bus-bars the current coming through the

booster series of coils automatically weakens the fields of the boosters (which are excited from the main bus-bars) and allows the current to feed out from the storage battery to the line in parallel with the series connections, the percentage of current required from the storage battery being regulated by the shunt fields of the boosters, so that when the load goes off, the proper position of the current will be boosted back into the storage battery and keep it fully charged ready for the next variable load call. A three-wire connection is made for ore and incandescent lighting, positive and negative loads being taken from the main bus-bars and the neutral from the storage battery. This gives 250 volts on a side. General electric enclosed arc lamps are used singly across the 250 volts, and the 250-volt incandescent lamps in the same way. The regulation is so close that no appreciable variation is noticed in the incandescent lighting at night, when all the machinery is running. The current for each circuit is fed through a Thompson recording wattmeter; the total output is registered by one large meter connected to the main bus-bars.

The dynamos and motors were all furnished by the General Electric Company, and the storage battery by the Electric Storage Battery Company. This plant was planned and installed under the direction of Messrs. Floy & Carpenter, of New York, consulting engineers. The work of installing the electrical plant was superintended and carried through to a very successful conclusion by Mr. Alexander Anderson.

This plant is one of the most modern and up-to-date specimens of economy and flexibility of electricity for power and light.

Should all of the following companies operating, developing and prospecting get to producing this year, St. Francois will have double the number of companies reporting this year and three times as many as she had last year. The following is a list of companies we hope to report as producing in our next report:

- Big River German Smelting Co.
- Central Lead Co.
- Columbia Lead Co.
- Desloge Lead Co.
- Doe Run Lead Co.
- Elizabeth Lead Co.
- Federal Lead Co.
- Leadsfield Lead Co.
- St. Joseph Lead Co.
- St. Louis Prospecting Co.
- St. Louis Smelting & Refining Co.
- Union Lead Co.

MADISON COUNTY.

Lead ore has been constantly mined in this county since 1720, and as mining was for a number of years confined to the surface ores only, the production was limited. The Mine La Motte mines have been virtually for a number of years the only mines operated in the county, and it is a matter of surprise to all who are capable of judging of the great possibilities of this fine property, that all through the ownership of Mr. Hazzard and that of the present owner, Mr. Leathe, the management has been so conservative and non-progressive. The Mine La Motte Estate embraces in its original grant 24,010 acres lying 100 miles south of St. Louis on the Iron Mountain railway. Originally this was a French grant made in 1717 and confirmed by an act of Congress to its then owners in 1830.

Since March 31, 1897, it has been the property of Mr. S. H. Leathe of St. Louis, Mo.

During the year 1877 a geological survey was made of this property by Mr. James E. Mills, an eminent geologist, who estimated the geological area as follows:

Lower sandstone and porphyry outcrop.....	11,850 acres
The lead-bearing group.....	12,160 acres

More or less shallow mining was done from 1720 until 1878, when the first deep mining was begun at a depth of 100 feet. At present three shafts are being worked at depths varying from 100 to 160 feet. Up to the present time the actual areas of deep mining ground exhausted are 19 acres, and in the shallow diggings about 65 acres.

The lead ore consists of galena or sulphide of lead associated with sulphides of nickel and cobalt, and in places with sulphides of iron and copper. These ore deposits are mostly imbedded in the strata and in this respect differ from deposits occupying fissures or veins cutting across the strata. The ore is disseminated through the rock of the stratum in which it exists or in other words is one of the constituents of the stratum; in this respect it is to be classed with the ores of St. Francois and distinguished from those of Southwest Missouri and Illinois, which are branches, strings and larger masses of galena occupying caves and channels in limestone in company with clay and ochers.

The shafts above mentioned are operated by steam hoists and most of the mining is done by an electric drill plant installed some

three years since at a large expense; the results, however, are very satisfactory. Tramways with full compliment of ore cars connect the shafts with the dressing works, the latter being made complete in every respect, with a capacity of 110 tons per day; adjoining is a machine shop containing machinery equal to all needed repairs and constructing required. The smelting plant consists of three calcine ovens, one large and one small smelting stack and one refining furnace. Connected with the mining and reduction works are 9 boilers, 10 engines, one blowing engine, one steam hoist at mill, one hydraulic hoist at furnace, together with the necessary steam pumps. There are also three complete and superior diamond drills, with a stock of diamonds sufficient for the work. Another most important and valuable feature connected with this plant is a complete system of water works, supplied from a reservoir covering 30 acres one mile distant and having a head of 70 feet. This not only decreases fire risks, but furnishes an ample supply of water for both the ore mill and furnaces.

The mines are phenominally free from water; in some places the floor being actually dusty. The ore varies in richness from 9 1-2 to 12 per cent., occasionally much higher.

The nickel and cobalt mattes are a large source of revenue and usually carry from 18 to 20 per cent., with 70 per cent. of copper. The annual output of refined lead is about 4,200,000 pounds, which could be doubled at a relatively small cost. Very nearly the entire surface of the grant is valuable for agricultural or stock raising purposes, there being approximately 8,000 acres in cultivation, divided into about 100 farms and leased from year to year for either a cash rent or one-third of the product. The owner also cultivates and has under fence for stock purposes about 2,500 acres, making a specialty of fine cattle, mules and hogs.

No part of the original grant has been alienated and exclusive of buildings at mines and reduction plant, there are 80 farm houses, 223 tenant houses, 5 schoolhouses, 4 churches and 2 store houses, making a total of 314. Two churches pay ground rent, as also do several residences. The store carries a stock of general merchandise with annual sales ranging between \$48,000 and \$50,000.

There are in addition to above land outlying farms which are also owned by Mr. Leathe; they are six in number, in a solid body and all in a high state of cultivation and lead bearing ground as demonstrated by shaft and diamond drill prospecting, their area being 1,384 acres. There are also several other tracts having an area of 12,220 acres and known as the "Pine Lands" which belong to this

estate, but nearly all of this body is uncultivated. No formal prospecting has been done on this land, but lead is known to exist in several places. Here is a body of land made up of the 24,010 acres of the original grant—1,384 acres embraced in the outlying farms and 12,220 acres of the pine lands—making in all 37,614 acres owned by one man. On this land there is a community of 1,600 people and this large mining plant; yet no labor strike has ever been known; it is without a saloon, lawyer, justice of the peace or constable and 'twould be useless to add that it is a peaceable community.

Madison county within the last year has given greater evidence of progress in its mining industry than for many years. New mines are being opened up on an extensive scale, and if reports are true, the Mine La Motte property will pass into the hands of parties who will develop the same to such an extent as to double its product. The opportunity for a greatly increased product from this county is not excelled anywhere; the ore bodies have been demonstrated by shafts and drill holes and with the new companies already at work and the change of management at Mine La Motte, there can be no question as to growth and prosperity in this county.

The Catherine Lead & Zinc Company is a substantial concern, officered and controlled by men of means, business and mining capacity. This company owns 1,700 acres of land, much of which has been tested by diamond drills; it is capitalized at \$500,000 and officered as follows: H. J. Cantrell, President; H. S. Brickey, Vice-President; E. H. Wagner, Secretary; Wm. Brown, Treasurer, and A. L. Tuttle, Superintendent.

The property of this company is located near Fredericktown and joins the land of the Mine La Motte company. At the time of our visit one shaft was down 101 feet and drifts running in a good face of disseminated ore; the work of sinking another shaft was progressing. In order to secure the water needed for the mill, the later is located some 9,150 feet from the shafts, but connected by an overhead tramway, the material for which was furnished by the Trenton Iron Works. To secure the needed supply of water at all times from the Little St. Francois river, a dam was constructed of stone well cemented, which is 8 feet high and 118 feet long; a flume 1,800 feet long, 6 feet wide with a 24-foot fall leads the water to 3 Turbin wheels opposite the mill and with a good stage of water, power is furnished sufficient to drive the entire plant and tramway; but the power is so arranged that either water or steam can be used for motive power. The mill is supplied with a Corliss engine 14x36, two boilers 54x16 feet, two pairs of rolls 14x30, two crushers 9x15, 14 steam jigs

and four 18-foot slime tables. A Worthington 10-inch triplex pump with a capacity of 1,000 gallons per minute is in use; also electric drills, etc.; in fact, everything about the plant is new, modern and first class. The machine shop is large and complete in all of its appointments, besides there has been constructed engine and boiler houses and a saw mill capable of cutting all kinds of timber needed.

Mr. Tuttle, the Superintendent of the company, is a gentleman possessing the theoretical and practical knowledge of his business, and in addition is active and exceedingly careful.

WASHINGTON COUNTY.

The discovery of the disseminated lead ore in this county and the sinking of shafts into the ore body by strong companies forever sets at rest the question discussed pro and con concerning the existence of such ore body in the county. The current year will doubtless find extensive plants constructed and a much larger production from this county than ever before recorded. Mining is engaged in at the same points where it was commenced in this county away back in 1725. Potosi, Mineral Point, Richwood, Old Mines and Palmer are still producing; but in most instances in the indifferent manner which has so long obtained in that section.

At Mine Renault, at Palmer, a large quantity of ore was mined and smelted by the Renault Lead Co., during the year, the output having increased immensely. The miners here work on the tributary system on the lands belonging to the company; they are allowed powder and tools and are paid \$5.00 per 1,000 pounds of lead ore mined. At times the miners make extra good pay under this system and informed the Inspector that some weeks they had made as much as \$60.00. The average will not hold out anything like this, but will for the year average about \$1.50 per day.

This company operates two small hot air furnaces, with a capacity of 8,000 and 6,000 pounds, respectively, working 12 hour shifts and employ in all 8 men. Head smelters receiving \$2.00 per day and back hands \$1.00 per day.

There are 35 producing shafts on the property, with depths running from 36 to 110 feet. The product for the year was 2,418,790 pounds of lead.

The George D. Boulton property, in charge of Mr. Hugh McGregor, as agent, produced 850,000 pounds of lead during the year. Miners work this land on the independent order, paying the owner of the land a royalty on each ton mined. There were 6 shafts of an average depth of 60 feet operated. A large amount of baryte is also mined on this property.

The Shibboleth Lead Mining Co.—This company owns 1,760 acres of land, 300 of which is considered mineral land. The character of the mining is what is known as surface mining with small holes and shafts sunk from 6 to 30 feet, the ore being in the clay and sometimes between the rocks or crevices in the rock. The company does not employ miners; but the miners work independently upon the land selling the lead ore to the company at \$17.00 per 1,000 pounds. The production from this land for the year was 400,000 pounds. A large amount of barytes is mined on this property also.

FRANKLIN COUNTY.

This county, like Washington and Jefferson counties, has many small mines which have been operated for a number of years. Deeper mining has been attempted during the past year; but beyond prospecting little has been accomplished in the way of production.

The Northumberland Mining Co.—Owns 90 acres of land in sections 5 and 32, townships 41 and 42, range 1, east. Mr. Chas. H. Filley, with office in the Fullerton building, St. Louis, is its Secretary. The company has sunk three shafts on its property, two of which have reached 60 feet in depth and the other is down 180 feet in a fissure vein in the limestone; 200,000 pounds of lead was extracated in the prospect work. Its equipment consists of one steam boiler, one steam pump, one steam hoister and two hand jigs.

The Sango Mining Co., H. R. Ameling, Superintendent, with post office at Moselle, owns 80 acres of land on which two shafts have been sunk, one of which reaches a depth of 100 feet and the other 130 feet. The equipment consists of 3 hand jigs, boiler, steam pump and steam hoister. The average number of men employed has been 14, who were engaged 90 days prospecting and 60 days producing ore. The output for the time being 100 tons of lead ore.

The Yellow Dog Mining Co. and other concerns are prospecting, but report no ore as sold.

JEFFERSON COUNTY.

This is the only county in Southeast Missouri producing any quantity of zinc ore, the product for the year was 1,515 tons and the total reported production to date amounting to 63,859 tons. The zinc ore of this section is largely carbonate. Lead ore has been produced in varying quantities for the past one hundred years.

The Valle Mines and the Sandy Mines only report a product this year. The Valle Mining Co. has been in existence since 1824; it owns 5,082 acres of land located in both Jefferson and St. Francois counties. The company employs no miners; neither does is lease its lands to

miners; the miners simply mine the ore and sell the same to the company at so much per ton for zinc ore and so much per 1,000 pounds lead ore. The product this last year was 1,515 tons of zinc ore (carbonate and silicate) and 309.75 tons of lead ore. Mr. Louis J. Ozier is its Superintendent, with post office address at Valle Mines, Jefferson county.

SOUTH CENTRAL MISSOURI.

Mining in a small way is prosecuted in the following counties:

Barry, Benton, Camden, Christian, Cole, Dade, Douglas, Hickory, Howell, McDonald, Miller, Morgan, Taney and Webster.

Benton, Hickory, Howell and Morgan counties give excellent promise of the opening of paying mines. In each of the counties a considerable amount of mineral has been produced, but up to the close of our fiscal year not one of the mines had been opened up to the extent of requiring the attention of the Inspector, and with two exceptions operators refused to report. Prospecting in Cole, Camden and Miller is still going on with flattering prospects in each county.

The Inspector finds it impossible to visit the new camps as he would like, having more to do than one man should be required to do; he is compelled to give his attention to the mines extensively worked, as there is much more at stake. If time will permit attention will be given to every promising mine in the above named counties.

IRON.

Shipments of iron ore for the year is in excess of last year, owing to the new field developed and opened up in Howell county and an increased production in St. Francois county. The product of the several counties is as follows:

County.	Tons.
Lawford	1,880
Dent	29,520
Howell	12,000
Miller	60
Douglas	900
Helps	360
St. Francois	43,800
Total	88,520

Dent county, in addition to its shipment of 29,520 tons of ore, produced and shipped 13,160 tons of pig iron.

TABLE NO. 2—Continued.

Counties.	Total.		Total for both lead and zinc.	Employees.		Days worked.		Men prospecting.	Wages, miners.	Wages, other help.	Machinery employed.									
	Zinc.	Lead.		Miners.	Others.	Producing.	Development.				Con'trating plant.	Hand jigs.	Steam boilers.	Steam pumps.	Air compressors.	Steam hoistets.	Horse hoisters.	Crushers.	Steam jigs.	Hand jigs.
1 Barry.....	\$4,034	\$110	\$4,144	36	10	80	350	10	\$1 25	\$1 30	3	3	4	3	4	4	4	3	2	11
2 Benton.....																				
3 Camden.....																				
4 Cole.....	3,514	18,348	21,862				1,745	135					19	6		13	19			12
5 Hickory.....																				
6 Miller.....																				
7 Tazewell.....																				
8 Webster.....			440	6	2		180	8	1 25	1 50			2	1		1	1			
9 Christian.....	3,500		3,500	6	2		200	100	1 25	1 50			1	1		1	1			
10 Franklin.....			5,670	15	8	60	300	10	1 25	1 50	1		3	3	1	3		2	5	3
11 Greene.....	8,740	812	9,552	9	9	132	288	10	1 50	1 75							6			
12 Howell.....	15,332	19,500	34,832	28	14	165	250		1 00	1 25			1	3		2				
13 Jasper.....	4,601,358	780,022	5,381,380	4,002	1,774	17,902	11,980	980	6	1 25	1 50		270	283	631	408	56	530	347	285
14 Jefferson.....	22,043	18,300	40,343	79	12	255	215	6	1 25	1 50			3	2	3	1	25	24	25	603
15 Lawrence.....	537,919	38,776	596,695	414	222	2,963	2,411	42	1 25	1 50			15	34	9	38	2	44	20	68
16 Madison.....	27,000	133,000	160,000	130	80	300	300		1 40	1 50			1	3	2	4	1	1	1	12
17 Morgan.....	8,405	8,302	16,707	25		360	200	30	1 25	1 50										
18 Newton.....	467,780	103,585	571,371	605	108	2,496	3,400	217	1 25	1 50			24	53	102	68	93	60	30	53
19 N. Franklin.....																				
20 St. Francois.....																				
21 Washington.....																				
Totals.....	\$5,711,631	\$3,728,202	\$9,439,833	6,088	3,282	29,819	22,332	1,613			327	384	906	620	75	715	521	380	597	832

Showing by counties, plant, employes, tonnage, prices and value of the lead and zinc product of Missouri for the fiscal year ending June 30, 1900.

Counties.	No. of acres, land	Capital.....	Shafts.		Zinc ore.				Lead ores.		Price.	
			Number shafts...	Average depth ...	Tons, zinc.....	Tons, silicate.....	Price, zinc.....	Price, silicate.....	Lead	Dry-bone.....	Lead.....	D. B.....
1 Barry.....	83	\$0,000	13	41	16	217	\$36 00	\$15 91	2 1-5		\$50 00	
2 Benton.....												
3 Camden.....												
4 Cole.....												
5 Hickory.....												
6 Miller.....			50	35	106	27	28 00	18	417		44 00	
7 Taney.....												
8 Webster.....												
9 Christian.....	300	19,000	4	110	100	50	28 00	14 00	10		44 00	
10 Dade.....	136	3,000	1	63								
11 Franklin.....	370	105,000	5	110	130	380	27 20	15 75	125		45 20	
12 Greene.....	84	16,500	8	76	130	1,179	28 00	12 04	16 1/2		50 75	
13 Howell.....	400	23,000	40	40	1 1/2	1,179	28 00	12 04	16 1/2			
14 Jasper.....	12,850	10,336,439	657	124	144,851 1/2	2,308 1/2	31 54	14 23	14,957 1/2	1,500	\$18 00	
15 Jefferson.....	5,040	204,000	26			1,515	3,730	14 55	329 1/2	112 1/2	51 80	25 11
16 Lawrence.....	890 1/2	506,000	64		14,331	3,730	33 88	19 40	707	56 00	50 55	
17 Madison.....	38,000	500,000	3	129	14,331 + 40	+ 900			2,700	50 00	50 00	
18 Morgan.....	132	3,750	4		15		27 00		191 1/2	43 24	43 24	
19 Newton.....	11,639		104		12,316	4,134	30 75	21 61	1,827	327	51 80	27 27
20 St. Francois.....	15,385	6,454,376	17	329					54,037	45 30	45 30	
21 Washington.....	20,384	294,000	147						3,127	47 80	47 80	
	106,339	\$18,524,685	1,103		171,905	14,390	\$31 71	\$16 79	78,538	1,940	\$47 47	\$16 05

*Open cut. †Nickel and Cobalt. ‡Iron.

TABLE IV.

Zinc, Price of Common Western Spelter in New York, 1875, to July 1, 1900, Inclusive.
[Cents per pound. Figures in parentheses are combination prices.]

Years.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Year.....
	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...		
1875.....	6.75	6.37	6.25	6.25	6.50	6.25	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1876.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1877.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1878.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1879.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1880.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1881.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1882.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1883.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1884.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1885.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1886.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1887.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1888.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1889.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1890.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1891.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1892.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1893.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1894.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1895.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1896.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1897.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1898.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1899.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00
1900.....	6.50	6.37	6.02	6.02	6.50	6.37	6.50	6.50	7.15	7.15	7.15	7.15	7.25	7.25	7.10	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.00	7.00	7.00

*Fiscal year ending June 30, 1900.

Average price for fiscal year.

St. Louis prices are usually .03 below New York prices.

TABLE V.

Showing the zinc ore product of Southwest Missouri from the 1873 to 1900, inclusive, together with the average price received per ton for the ore and total value of same.

No. of tons.	Average price.	Am't rec'd for output.	Year.	No. of tons.	Average price.	Am't rec'd for output.
900	\$9 00	\$8,640 00	1887.....	57,300	\$19 00	\$1,088,700 00
5,100	10 00	51,000 00	1888.....	61,550	21 00	1,292,550 00
3,600	12 00	36,000 00	1889.....	82,357	21 44	1,765,734 08
11,300	13 50	148,000 00	1890.....	100,248	22 51	2,256,583 00
10,000	14 00	140,000 00	1891.....	123,752	21 60	2,673,063 36
12,000	16 50	198,000 00	1892.....	131,488	21 76	2,862,475 08
20,000	17 00	340,000 00	1893.....	108,591	20 57	2,245,028 80
27,500	16 00	440,000 00	1894.....	89,150	15 00	1,337,910 36
35,500	16 50	579,150 00	1895.....	101,294	16 86	1,707,665 40
34,900	16 90	589,100 00	1896.....	92,754	19 75	1,831,856 45
35,700	17 50	624,750 00	1897.....	93,148	18 62	1,706,947 53
43,200	18 00	777,600 00	1898.....	139,668	20 96	2,927,321 00
42,200	17 50	738,500 00	1899.....	181,430	32 93	5,974,624 00
48,400	18 50	895,400 00	1900.....	186,293	30 66	5,711,631 00
Totals				1,882,063	\$21 75	\$40,948,230 00

In the above table the last ten years are our fiscal years, ending June 30.

The average price includes all grades of ore.

TABLE IV.

Zinc, Price of Common Western Spelter in New York, 1875, to July 1, 1900, Inclusive.
[Cents per pound. Figures in parentheses are combination prices.]

Years.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Year.....
	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...	Lowest...	Highest...		
1875.....	6.75	6.37	6.25	6.20	6.50	6.50	7.00	6.50	7.25	7.15	7.25	7.15	7.35	7.25	7.25	7.10	7.10	7.10	7.15	7.15	7.15	7.15	7.15	7.15	7.00
1876.....	(7.00)	7.40	(7.75)	7.62	(8.75)	7.62	7.37	6.25	7.75	7.25	6.12	5.87	5.87	5.87	5.87	6.80	6.80	6.80	6.75	6.62	6.37	6.37	6.37	6.37	7.25
1877.....	6.50	6.25	6.02	6.37	6.25	5.25	6.25	5.00	6.25	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	6.08
1878.....	4.50	4.25	4.02	4.37	4.75	4.25	4.75	4.25	4.37	4.25	4.25	4.25	4.75	4.75	4.75	4.80	4.80	4.80	4.82	4.82	4.82	4.82	4.82	4.82	5.00
1879.....	6.50	5.87	6.75	6.50	6.75	6.12	6.12	6.12	6.00	5.02	5.02	5.02	5.00	5.00	5.02	5.02	5.02	5.02	5.00	5.00	5.00	5.00	5.00	5.00	5.00
1880.....	5.25	4.87	5.75	5.00	5.50	5.12	5.12	5.12	5.00	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	5.51
1881.....	6.00	5.75	5.75	5.02	5.50	5.25	5.25	5.25	5.02	5.25	5.25	5.25	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.12	5.51
1882.....	4.62	4.50	4.62	4.50	4.75	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	5.51
1883.....	4.37	4.20	4.40	4.40	4.65	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	5.51
1884.....	4.50	4.12	4.30	4.12	4.30	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	5.51
1885.....	4.50	4.30	4.35	4.30	4.40	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	5.51
1886.....	4.00	4.50	4.60	4.40	4.65	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	5.51
1887.....	5.37	5.20	5.35	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	5.51
1888.....																									5.51
1889.....																									5.51
1890.....																									5.51
1891.....																									5.51
1892.....																									5.51
1893.....																									5.51
1894.....																									5.51
1895.....																									5.51
1896.....																									5.51
1897.....																									5.51
1898.....																									5.51
1899.....																									5.51
1900.....																									5.51

* Fiscal year ending June 30, 1900.
Average price for fiscal year.....4.32.
St. Louis prices are usually .03 below New York prices.

Company	Shares	Assets	Liabilities	Capital	Surplus	Dividends	Notes
Empire Zinc Co. (Eagle Mines).....	100	175	3,000 1/4	6	175	3,000 1/4	49 50
Empire Zinc Co. (Brookside Land).....	200	15	431 1/2	15	431 1/2	57	53 50
Essex Mining Co.....	240	1	110	1	110	567	52 12
Eureka Mining Co.....	4	85	413	6	413	57 1/2	52 30
Freeman Land & Mining Co.....	9	12,000	317	6	317	57 1/2	52 30
Gunk & Bowman.....	80	132	190	1	190	1 1/2	52 00
Grounds, J. W.....	2	190	9	1	9	1 1/2	52 00
Granby Mining & Smelting Co. (Oronogo).....	400	18	14,712	18	14,712	45	51 80
Granby Mining & Smelting Co. (Joplin).....	400	20	4,016	20	4,016	1,025	50 90
Hafner & Carl.....	60	4	893	4	893	7	50 90
Hagardorn, R.....	30	70	84	12	84	13 1/2	49 44
Hagardorn & Rose.....	20	110	423	3	423	55 10	55 10
Harrison, J. O.....	2	100	423	3	423	55 10	55 10
Holden Bros.....	40	140	8 1/2	1	8 1/2	27 1/2	54 75
Holmes & Co.....	40	100	516 1/4	1	516 1/4	109 1/2	52 06
Holmes & Co.....	40	100	3,989	2	3,989	187 1/4	52 00
Hill Top Mining Co.....	80	114	48	2	48	4 1/2	47 60
Hill Top Mining Co.....	80	114	48	2	48	82	52 62
Hulsheng Mining Co.....	6	135	1,223	5	1,223	2	42 50
Independence Lease.....	24	162	304	2	304	2	42 50
Indiana Mining Co.....	106	117	29	3	29	441	48 00
International Zinc Co., Ltd. (Joplin).....	110	130	965	3	965	19 91	25 25
International Zinc Co., Ltd. (Oarterville).....	25	140	2,404	1	2,404	38 1/2	54 00
Investors' Mining Co.....	25	140	3,098	1	3,098	3 1/2	48 30
Ishpeming Mining Co.....	400	150	621 1/2	2	621 1/2	182 1/2	51 60
John Jackson Mining Co.....	91	125	48	3	48	5	55 50
Jackson Junior Zinc Co.....	20	150	48	3	48	3 1/2	48 00
Joplin Prospecting Co.....	40	180	48	1	48	3 1/2	48 00
Kane Mining Co.....	40	180	48	1	48	3 1/2	48 00
Keystone Mining Co.....	22	15	431 1/2	15	431 1/2	128 1/4	48 50
Kirkbride Mining Co.....	33	120	275	1	275	104	43 50
Kimberly Mining Co.....	4	90	802	2	802	174	51 24
Kansas City Mining & Milling Co.....	45	90	520	2	520	30 1/2	55 16
Lead Hill Mining Co. (Carthage).....	40	140	520	2	520	1 1/2	48 00
Lead Hill Mining Co. (Zincite).....	80	130	26	2	26	9	44 00
Lee Moore.....	40	130	26	2	26	25	52 00
Leota Mining Co.....	5	60	2	1	2	5-6	24 00
Lewis, J. F.....	2	180	544 1/2	1	544 1/2	25	52 00
Locust Mining Co.....	6	147	39 1/2	1	39 1/2	25	52 00
Lincoln Mining Co.....	20	125	110	2	110	32 1/2	44 00
Lucky Tom Mining Co.....	6	130	37 1/2	1	37 1/2	143 1/2	50 52
McConnell Mining Co.....	4	116	22	1	22	118 1/2	52 00
McCullough-Brownlee Mining Co.....	80	170	403	3	403	359 1/2	54 00
McKinley Mining Co.....	60	191	513	3	513	57 1/2	50 36
Manhattan Mining Co.....	40	25	282 1/2	5	282 1/2	25 1/2	49 00
Massachusetts Mining Co.....	95	129	3,425	5	3,425	25 1/2	49 00
Massachusetts Mining Co.....	40	110	406 1/2	1	406 1/2	12	52 00
Massachusetts Lead & Zinc Co.....	4	170	107	1	107	13 72	52 12
Michigan Mining Co.....	4	160	38	1	38	172	52 75
Mistletoe Mining Co.....	40	31	60	20	60	38 1/2	48 60
Missouri Lead & Zinc Co.....	1,200	31	4,017 1/2	53	88	45 1/2	52 00
Missouri Zinc Fields Co.....	440	165	6,678	19	6,678	45 1/2	52 00
Mohean Mining Co.....	51	206	239	1	239	43 1/2	48 60

EMPLOYEES, EQUIPMENT, TONNAGE AND VALUE—Continued.

Office number.	Name of mine, owner or company.	Acres of land leased or owned.	Capital invested in land and plant.	Shafts oper'd, number.	Shafts oper'd, av. depth.	Tons zinc ore produced, zinc.	Tons zinc ore produced, silicate.	Av. price rec'd per ton, zinc.	Av. price rec'd per ton, silicate.	Tons lead ore produced, lead.	Tons lead ore produced, dry-bone.	Av. price rec'd per ton, lead.	Av. price rec'd per ton, dry-bone.
87	Mount Arrarat Mining Co.	10	\$0,000	4	165	500		\$27 00		150		\$40 00	
88	Narragansett Lead & Zinc Co.	40	40,000	13	140	10		34 00		1 1/4		54 00	
89	North Heights Mining Co.	150		13	120	1,218		39 90		63 1/4		46 16	
90	Ohio Mining Co.	40											
91	Old Colony Zinc & Smelting Co.	237		6	220	2,345		35 85		23 1/4		54 00	
92	Oro Mines.	40	10,000	2	227	67 1/2		30 00		33		54 00	
93	Pearl & Co. Mining Co.	8	45,000	1	150	1,139 1/2		30 15		1 1/4		54 00	
94	Perry Leases.	40		15	185	618	6 1/2	\$16 70		11		54 00	
95	Pleasant Valley Mining Co.	190	10,000	13	110	1,944		31 80		66 3/4		50 32	
96	Porto Rico Mining Co.	40	4,000	5	183	1,143		35 00					
97	Rabbits Foot Zinc Mining Co.	40	12,000	1	100								
98	Rannabarger Mining Co.	30	900	1	120	550		31 00		30 1/2		52 00	
99	Rex Mining & Smelting Co.	240		1	150	145		21 40		103 1/2		54 24	
100	Roaring Springs Land & Mining Co.	1,000	230,000	20	120	44 1/2		33 37		72 1/2		52 84	
101	Sadler Lead-Zinc Co.	208	20,000	4	115	2,884 1/2		32 50		164 1/2		53 00	
102	Sand Creek Mining Co.	220		1	135	1,532	13		14 00	2 1/2		52 50	37 58
103	Sam Moore Mining Co.	14	20,000	1	100	372 1/2		25 00		84 1/2		54 35	
104	South Creek Mining Co. (Ledy & Schmidt).	70	5,000	7	85	920		25 00		31		40 00	
105	South Joplin Lead & Zinc Mining Co.	40	5,000	2	140	10		23 00					
106	Spahn Mining Co.	32	70,000	22	109	1,079		31 90					
107	Stuckey Mining Co.	72	4,000	9	65	432 1/2		30 00		1 1/2		50 00	
108	The Brooklyn.	7	30,000	1	175	125		20 16		24		54 92	
109	The Garden Lead & Zinc Mining Co.	40	25,000	2	122	107		24 00		13 1/2		50 30	
110	The Howard Mining Co.												
111	The M. S. Mining Co.	10	30,000	1	200								
112	The Montgomery Lead & Zinc Mining Co.	200	35,000	14	90	1,200		31 50		2 1/2		50 00	
113	The Springer & Page Mining Co.	80	50,000	4	75	1,500		33 00				52 00	
114	Three Friends Zinc Mining Co.	320	160,000	10	130	1,400		35 00		1		53 00	
115	The Roberts Mining Co.	40	25,000	1	200	255		20 00				52 00	
116	Triad Mining Co.	40	10,000	3	100	408		30 00		30 1/2		53 00	
117	Trough Mining Co.	40	100,000	5	104	1,421 1/2		20 25		90 1/2		53 00	
118	United Zinc Cos.	190	265,000	18	135	3,938		33 92		46 1/2		52 74	
119	Warren Armington.	40	12,000	5	130	520 1/2		33 50		43 1/2		48 00	
120	Webster Realty Co.	40	6,308	6	130	373 1/2		35 50					
121	Weyburn & McConee.	40		6	130								

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EMPLOYEES, EQUIPMENT, TONNAGE AND VALUE—Continued.

Name of mine, owner or company.	Am't received for		Total am't received for lead and zinc ore.....	Av. number of miners employed.....	Av. number of other employes.....	No. days worked producing ore.....	No. days worked on development work.....	Av. No. men prospecting	Av. wages, miners.....	Av. wages other help...	Machinery employed.									
	Zinc ore.....	Lead ore.....									Coneen'g plants.	No. h'd jig plants	No. steam boilers.	No. steam pumps.	No. air compressors	No. steam hoisters	No. horse hoisters	No. of crushers...	No. of steam jigs.	No. of hand jigs..
91 Old Colony Zinc & Smelting Co.....	\$83,035	\$12,663	\$95,698	40	30	300	150	12	\$2.35	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
92 Ore Mines.....	2,010	1,782	3,792	8	8	120	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
93 Pearl "C" Mining Co.....	34,258	81	34,339	12	6	200	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
94 Pearl Mining Co. (J. W. McCulloch).....	19,651	907	20,558	10	5	160	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
95 Perry Leases.....	57,895	33,623	91,518	23	30	250	60	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
96 Pleasant Valley Mining Co.....	40,000	.....	40,000	30	15	200	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
97 Porto Rico Mining Co.....	.....	2,745	2,745	8	2	130	300	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
98 Rabbits Foot Mining Co.....	17,000	.....	17,000	10	9	136	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
99 Rannabarger Mining Co.....	4,350	5,499	9,849	15	.....	120	.....	14	1.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
100 Reagan Mining Co.....	952	3,932	4,884	10	7	190	150	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
101 Rex Mining & Smelting Co.....	79,579	42,060	121,639	150	7	300	.....	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
102 Rearing Springs Lead & Mining Co.....	50,440	8,726	59,166	31	33	300	250	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
103 Rothler Lead-Zinc Co.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
104 Sam Moore Mining Co.....	182	745	927	4	4	40	100	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
105 Scott Creek M. Co. (Geddy & Schmidt).....	14,900	4,504	19,404	15	5	182	130	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
106 South Joplin Lead & Zinc Mining Co.....	13,000	1,426	14,426	35	10	130	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
107 Spinks Mining Co.....	250	.....	250	6	.....	150	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
108 Spokekey Mining Co.....	34,343	.....	34,343	24	18	289	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
109 The Brooklyn.....	16,272	75	16,347	30	15	140	170	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
110 The Garden Lead & Zinc Mining Co.....	3,660	1,318	4,978	6	6	75	300	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
111 The Howard Mining Co.....	2,575	691	3,266	17	16	80	140	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
112 The M. S. Mining Co.....	.....	.....	.....	4	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
113 The Montgomery Lead & Zinc M. Co.....	37,875	125	38,000	40	20	200	120	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
114 The Springer & Page Mining Co.....	49,500	.....	49,500	32	8	300	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
115 The Friends Zinc Mining Co.....	49,000	52	49,052	35	20	290	100	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
116 The Roberts Mining Co.....	6,630	1,616	8,246	15	5	240	60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
117 The Robert Mining Co.....	11,020	1,616	12,636	15	5	150	150	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
118 The Robert Mining Co.....	37,314	10,610	47,924	35	25	140	130	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
119 United Zinc Companies.....	133,575	2,822	136,397	80	53	91	42	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
120 Warren Mining Co.....	16,400	2,040	18,440	25	3	250	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
121 Webster R. Co.....	319	.....	319	.....	.....	30	180	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
122 W. S. Mining Co.....	9,628	9,628	20	10	220	340
123 Wilson & Co., J. F.....	1,888	1,016	2,904	6	2	150	200

Ice number.....

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Wright Mining Co.....	9,022	19,706	9,622	8	1	50	280	4	2 00	1	1	3	3	3	2	1	10
Yale & O'Brien.....	7,508	27,214	27,214	20	1	280	80	10	2 00	1	1	2	2	2	1	1	10
	\$4,601,358	\$780,022	\$5,381,380	4,002	1,734	17,902	11,980	980	\$2 07	270	283	631	408	56	530	367	457 603

JEFFERSON COUNTY.

Name of mine, owner or company.	Av. price rec'd per ton, dry-bone.....	Av. price rec'd per ton, lead.....	Tons lead ore produced, dry bone.....	Tons lead ore produced, lead.....	Av. price rec'd per ton, silicate.....	Av. price rec'd per ton, zinc.....	Tons zinc ore produced, silicate.....	Tons zinc ore produced, zinc.....	Shafts operated, average depth.....	Shafts operated, average number.....	Capital invested in land and plant.....	Acres of land leased or owned.....
Sandy Mines, Park & Mysenburg.....	\$53 00	.....	30	.....	.....	.....	.....	110	1	\$4,000	40
Valle Mining Co.....	56 00	.....	305 1/4	\$14 55	.....	1,515	.....	100	25	200,000	5,000
Totals.....	329 3/4	.....	.....	1,515	.....	.....	26	\$204,000	5,040

BARRY COUNTY.

Name of mine, owner or company.	Av. price rec'd per ton, dry-bone		Av. price rec'd per ton, lead.....		Tons lead ore produced, dry-bone.....		Tons lead ore produced, lead.....		Av. price rec'd per ton, silicate.....		Av. price rec'd per ton, zinc.....		Tons zinc ore produced, silicate		Tons zinc ore produced, zinc		Shafts operated, average depth.....		Shafts operated, average number.....		Capital invested in land and plant....		Acres of land leased or owned.....	
Henderson Mining Co.....				\$50 00				\$24 00			\$38 00		12	16	55	3	7	3	\$5,000	3			3	
Monett & Berry.....				50 00				14 00					130	41	41	7	4	1,000	40				40	
Pioneer Mining & Milling Co.....				50 00				18 00					75	28	28	3	3	3,000	40				40	
													217	41	41	13	13	\$9,000	83				83	

BARRY COUNTY.

Name of mine, owner or company.	Machinery employed.										Av. wages, other help..	Av. wages, miners.....	Av. No. men prospec'ng	No. days worked on development work.....	No. days worked producing ore.....	Av. number of other employes.....	Av. number of miners employed.....	Total am't received for lead and zinc ore.....	Am't received for																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	No. of hand jigs...	No. of steam jigs.	No. of crushers...	No. horse holsters	No. steam holsters	No. air compress'rs	No. steam pumps.	No. steam boilers.	No. h'd jig plants	Concen'ing plants									Lead ore.....	Zinc ore.....																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										

EMPLOYES, EQUIPMENT, TONNAGE AND VALUE—Continued.

CHRISTIAN COUNTY.

Name of mine, owner or company.	Average price received per ton, dry-bone.....	Average price received per ton, lead.....	Tons lead ore produced, dry-bone.....	Tons lead ore produced, lead.....	Average price received per ton, silicate.....	Average price received per ton, zinc.....	Tons zinc ore produced, silicate.....	Tons zinc ore produced, zinc	Shafts operated, average depth.....	Shafts operated, average number.....	Capital invested in land and plant.....	Acres of land leased or owned.....
New Era Mining Co.....	\$44 00	\$44 00	10	16					130 80	2192	\$14,000 5,000	180 120
Ozark Mining Co.....									110	4	\$19,000	300

CHRISTIAN COUNTY.

Name of mine, owner or company.	Machinery employed.	No. of hand jigs..	No. of steam jigs.	No. of crushers...	No. horse holsters	No. steam holsters	No. air compres'rs	No. steam pumps.	No. steam boilers.	No. h'd jig plants	Concen'ting plants	Av. wages other help...	Av. wages, miners.....	Av. No. men prospec'ng	No. days worked on development work.....	No. days worked producing ore.....	Av. number of other employes.....	Av. number of miners employed.....	Total am't received for lead and zinc ore.....	Am't received for Lead ore..... Zinc ore.....
New Era Mining Co.....		\$1 50	\$1 25	8	180		2	6	\$440	\$440
Clark Mining Co.....		\$1 50	\$1 25	8	190		2	6	\$440	\$440

DADE COUNTY.

Name of mine, owner or company.	Av. price rec'd per ton, dry-bone .....	.....
	Av. price rec'd per ton lead .....	.....
	Tons lead ore produced, dry-bone .....	.....
	Tons lead ore produced, lead .....	.....
	Av. price rec'd per ton, silicate	\$14 00
	Av. price rec'd per ton, zinc	\$28 00
	Tons zinc ore produced, silicate	50
	Tons zinc ore produced, zinc	100
	Shafts oper'd, av. depth.	63
	Shafts oper'd, number.	1
	Capital invested in land and plant	\$3,000
	Acres of land leased or owned	136
Uncle Tom Mining Co.....		

DADE COUNTY.

Machinery employed.	No. of hand jigs...	3
	No. of steam jigs.	...
	No. of crushers....	1
	No. horse holsters	1
	No. steam holsters	1
	No. air compres'rs	...
	No. steam pumps.	...
	No. steam boilers.	1
	No. h'd jig plants.	1
	Concen'ing plants.	...
	Av. wages other help...	
	Av. wages, miners.....	
Av. No. men prospec'ng		
No. days worked on development work.....		
No. days worked producing ore.....		
Av. number of other employes.....		
Av. number of miners employed		
Total am't received for lead and zinc ore.....		
Am't received for	Lead ore.....	...
	Zinc ore.....	\$3,500
Name of mine, owner or company.		Uncle Tom Mining Co.....

EMPLOYES, EQUIPMENT, TONNAGE AND VALUE—Continued.

FRANKLIN COUNTY.

Name of mine, owner or company.	Av. price rec'd per ton, dry-bone		Tons lead ore produced, dry-bone	Tons lead ore produced, lead.....	Av. price rec'd per ton, silicate.....	Av. price rec'd per ton, zinc	Tons zinc ore produced, silicate	Tons zinc ore produced, zint.....	Shafts oper'd, av. depth.	Shafts oper'd, number.	Capital invested in land and plant.....	Acres of land leased or owned.....
Northumberland Mining Co.....		\$50 00		25					180	1	\$75,000	90
The Sango Mining Co.....		44 00		100					130	2	60,000	80
The Yellow Dog Mining Co.....									55	2	30,000	200
Totals.....				125					110	5	\$165,000	370

FRANKLIN COUNTY.

Machinery employed.	No. of hand jigs...	2
	No. of steam jigs.	1
	No. of crushers...	1
	No. horse holsters	1
	No. steam holsters	1
	No. air compres'rs	1
	No. steam pumps.	1
	No. steam boilers.	1
	No. h'd jig plants	2
	Concen'ing plants.	1
	Av. wages other help...	\$1 50
	Av. wages, miners.....	\$1 25
Av. No. men prospec'ng	300	
No. days worked on development work.....	25	
No. days worked producing ore.....	7	
Av. number of other employees.....	\$1,250	
Av. number of miners employed.....	4,400	
Total am't received for lead and zinc ore.....	\$1,250	
Am't received for	Lead ore.....	\$1,250
	Zinc ore.....	4,400
Name of mine, owner or company.		Northumberland Mining Co.
		the Sango Mining Co.

GREENE COUNTY.

Name of mine, owner or company.	Av. price rec'd per ton.			Tons lead ore produced, dry bone.....	Tons lead ore produced, lead.....	Av. price rec'd per ton, silicate.....	Av. price rec'd per ton, zinc	Tons zinc ore produced, silicate.....	Tons zinc ore produced, zinc	Shafts operated, average depth.....	Shafts operated, average number.....	Capital invested in land and plant.....	Acres of land leased or owned.....
	dry-bone.....	.....	.....								
Murray & Rainey.....		\$48 00				\$16 00	\$30 00	250	10	120	1	\$1,500	4
Loy & Preston.....		50 00				15 00	27 00	80	120	70	7	15,000	80
Totals.....					6% 10 10%			330	101	76	8	\$16,500	84

GREENE COUNTY.

Name of mine, owner or company.	Machinery employed..		Av. wages other help. ..	Av. wages, miners.....	Av. No. men prospect'ng	No. days worked on development work.....	No. days worked producing ore.....	Av. number of other employes.....	Av. number of miners employed	Total am't received for lead and zinc ore.....	Am't received for	
	No. of hand jigs..	No. of steam jigs..									Lead ore.....	Zinc ore.
Murray & Rainey.....						188	72	3	3	\$4,612	\$312	\$4,200
Loy & Preston.....						120	60	6	6	4,940	500	4,440
Totals.....						298	132	9	9	\$9,552	\$812	\$8,740

EMPLOYES, EQUIPMENT, TONNAGE AND VALUE—Continued.

HOWELL COUNTY.

[illegible]

HOWELL COUNTY.

Name of mine, owner or company.	Am't received for		Total am't received for lead and zinc ores.....	Av. number of miners employed.....	Av. number of other employes.....	No. days worked producing ore.....	No. days worked on development work.....	Av. No. men prospecting	Av. wages, miners.....	Av. wages other help...	Machinery employed.
	Zinc ore.....	Lead ore.....									
Alice Mining Co.....	\$10,000	\$10,500	\$20,500	5	4	175	.....	.....	10c an hr	.....	No. of hand jigs..... 1
G. & G. Mining Co.....	15	15	30	15	8	100	.....	.....	"	.....	No. of steam jigs..... 1
.....	5,200	5,200	10,400	6	2	90	.....	.....	"	.....	No. of crushers.....
South Missouri Mining Co.....	\$15,322	\$19,500	\$34,822	20	14	305	.....	.....	"	.....	No. horse hoists..... 1
Totals.....											No. steam hoisters..... 1
											No. air compressors..... 1
											No. steam pumps..... 1
											No. steam boilers..... 1
											No. h'd jig plants..... 1
											Concentrating plants..... 1

LAWRENCE COUNTY.

Office number.	Name of mine, owner or company.	Acres of land leased or owned.	Capital invested in land and plant.	Shafts operated, average number.	Shafts operated, average depth.	Tons zinc ore produced, zinc.	Tons zinc ore produced, silicate.	Av. price rec'd per ton, zinc.	Av. price rec'd per ton, silicate.	Tons lead ore produced, lead.	Tons lead ore produced, dry-bone.	Av. price rec'd per ton, lead.	Av. price rec'd per ton, dry-bone.
1	Baptist & Methodist Nos. 1 and 2.	40	\$600	4	95	1,593	1,593	\$32.44	\$23.81	523 3/4	523 3/4	\$53.00	\$53.00
2	Boston-Aurora Zinc Co.	80	40,000	5	103	4,275 3/4	4,275 3/4	36.10	15.00	11 1/4	11 1/4	53.72	53.72
3	Boston-Loy Zinc Mining Co.	13 1/2	75,000	1	180	1,128 1/2	1,128 1/2	33.00	20.00	40	40	41.00	41.00
4	Campbell & Co.	40	25,000	1	100	90	90	37.00	20.00	7 1/2	7 1/2	50.00	50.00
5	Chicago & Aurora Mining Co.	48	4,000	1	125	210	210	27.00	15.00	1	1	48.00	48.00
6	Dalby & Moses.	18	20,000	3	100	500	500	27.20	15.00	1	1	42.00	42.00
7	Deatur Lead & Zinc Co.	40	100,000	3	80	172	172	31.67	15.00	11	11	48.00	48.00
8	Julia West Mining Co.	20	25,000	2	200	147 3/4	147 3/4	29.30	15.00	74 1/2	74 1/2	52.38	52.38
9	Kansas City-Aurora Mining Co.	80	25,000	6	103	904	904	29.30	15.75	40 3/4	40 3/4	46.00	46.00
10	Kentucky Mining Co.	20	40,000	4	190	5,211	5,211	36.38	12.00	442 3/4	442 3/4	52.00	52.00
11	Mount Vernon Mining Co.	237	15,000	5	85	10	10	29.11	20.00	13	13	50.00	50.00
12	Ozark Range Mining Co.	52	40,000	3	100	64	64	34.00	20.00	13	13	50.00	50.00
13	Schmook Heirs.	40	12,000	1	180	653	653	38.00	20.00	13	13	50.00	50.00
14	Spring River Mining Co.	30	50,000	1	100	40	40	30.00	18.00	19 3/4	19 3/4	52.00	52.00
15	Steel Hunter Mining & Smelting Co.	14	50,000	1	151	36	36	31.00	14.71	11	11	52.00	52.00
16	Terre Haute Land & Mining Co.	84	110,000	3	71 1/2	741 1/2	741 1/2	30.12	14.71	11	11	52.00	52.00
17	United Zinc Companies.	84	110,000	20	80	711 1/2	711 1/2	30.12	14.71	11	11	52.00	52.00
	Totals.	890 1/2	\$536,640	64	.....	14,331	14,331	\$53.88	\$19.40	767	767	\$50.55	\$50.55

EMPLOYEES, EQUIPMENT, TONNAGE AND VALUE—Continued.

LAWRENCE COUNTY.

Name of mine, owner or company.	Am't received for		Total am't received for lead and zinc ore.....	Av. number of miners employed	Av. number of other employes.....	No. days worked producing ore.....	No. days worked on development work.....	Av. No. men prospect'g	Av. wages, miners.....	Av. wages other help....	Machinery employed.									
	Zinc ore.....	Lead ore.....									No. concen'tg plants	No. h'd jig plants.	No. steam boilers.	No. steam pumps.	No. air compress'rs	No. steam hoisters	No. horse hoisters	No. of crushers.	No. of steam jigs.	No. of hand jigs..
1 Baptist & Methodist Nos. 1 and 2.....	\$37,931	\$2,848	\$40,779	39	10	300	300	31	3.175	.....	.....	.....	4	6	.....	4	.....	.....	.....	20
2 Boston-Aurora Zinc Co.....	138,987	509	139,496	70	30	300	300	5.2	5.212 3/4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
3 Boston-Lay Zinc Mining Co.....	40,739	1,894	42,633	24	4	300	300	3.2	3.200	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
4 Campbell & Co.....	4,390	375	4,765	7	4	394	394	4.1	4.175	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12
5 Chicago & Aurora Mining Co.....	5,670	.....	5,670	8	10	35	35	1	1.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14
6 Calby & Moses.....	7,500	42	7,542	25	10	100	100	5.1	5.175	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
7 Decatur Lead & Zinc Co.....	4,784	538	5,322	10	11	60	60	15	15.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14
8 Julia West Mining Co.....	1,470	3,962	5,432	8	8	98	98	15	15.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
9 Kansas City-Aurora Mining Co.....	1,470	2,150	3,620	10	12	90	90	15	15.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10
10 Kentucky Mining Co.....	29,683	1,952	31,635	25	15	250	250	1.87	1.87	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12
11 Kent Vernon Mining Co.....	191,139	22,872	214,011	84	49	220	220	75	75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
12 Mark Range Mining Co.....	21,653	.....	21,653	20	5	180	180	4.2	4.200	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
13 Chmook-Hells.....	1,348	87	1,435	9	4	44	44	150	150	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
14 Spring River Mining Co.....	24,814	.....	24,814	16	16	221	221	100	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15 Spring Huston Mining & Smelting Co.....	1,200	.....	1,200	8	.....	50	50	230	230	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
16 Terre Haute Lead & Mining Co.....	9,586	950	10,536	20	2	220	220	1.75	1.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
17 United Zinc Companies.....	32,346	557	32,903	40	23	220	220	2.40	2.40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	30
Totals.....	\$557,919	\$38,776	\$596,695	414	222	2,963	2,411	42	.....	.....	18	34	40	38	2	44	26	24	68	104

mber.....

EMPLOYEES, EQUIPMENT, TONNAGE AND VALUE—Continued.

MADISON COUNTY.

Name of mine, owner or company.	MADISON COUNTY.	
	Av. price rec'd per ton, dry-bone .....	.....
	Av. price rec'd per ton, lead	\$50 00
	Tons lead ore produced, dry-bone .....	.....
	Tons lead ore produced, lead	2,700
	Av. price rec'd per ton, silicate .....	.....
	Av. price rec'd per ton, zinc .....	.....
	Tons zinc ore produced, silicate	4000
	Tons zinc ore produced, zinc	*40
	Shafts operated, average depth	$\left\{ \begin{array}{l} 100 \\ 118 \\ 160 \end{array} \right.$
	Shafts operated, average number	3
	Capital invested in land and plant	500,000
	Acres of land leased or owned	33,000
Mine LaMotte—S. H. Leathe, Proprietor		

*Nickel & Cabalt, tons. †Iron, tons.

MADISON COUNTY.

Name of mine, owner or company.	MADISON COUNTY.	
	Machinery employed.	No. of hand jigs...
		No. of steam jigs.
		No. of crushers...
		No. horse hoisters
		No. steam hoisters
		No. air compressors
		No. steam pumps.
		No. steam boilers.
		No. h'd jig plants.
		Concen'ing plants
	Av. wages other help...	.....
	Av. wages, miners	\$1 40
	Av. No. men prospecting	.....
	No. days worked on development work .....	.....
	No. days worked producing ore	300
	Av. number of other employes	90
	Av. number of miners employed	130
	Total am't received for lead and zinc ore	\$162,000
	Am't received for	Lead ore
		Zinc ore
Mine LaMotte—S. H. Leathe, Proprietor		

STATE MINE INSPECTOR.

15

NEWTON COUNTY.

Name of mine, owner or company.	Am't received for		Total am't received for lead and zinc ore.	Av. number of miners employed	Av. number of other employees	No. days worked producing ore	No. days worked on development work	Av. No. men producing	Av. wages, miners	Av. wages other help	Concerning plants	No. hid jig plants	No. steam boilers	No. steam pumps	No. air compressors	No. steam hoisters	No. horse hoisters	No. of crushers	No. of steam jigs	No. of hand jigs
	Lead ore	Zinc ore																		
W. A. No. 1 st Mining Co.	\$24,017		\$24,017	12	2	123	40	120	\$1.01											
Am't Parley Mining Co.	11,925		11,925	6	0	100	170	120	1.00											
Franklin Springfield Zinc Co.	30,000		30,000	10	0	120	300	120	1.00											
Colorado (Cheney)	1,000		1,000	6	0	80	250	120	1.00											
Columbia Mining Co.	12,180		12,180	2	0	110	130	120	1.00											
Booby Street Mining Co.	403		403	20	10	28	250	120	1.00											
German American L. M. Co.	321		321	4	1	30	200	120	1.70											
Hamling Mine (Clark Craycroft)	4,005		4,005	2	0	120	120	120	1.00											
Granby Mining & Smelting Co.	20,120		20,120	300	0	100	80	100	1.00											
Greengrass Mining Co.	3,381		3,381	2	0	110	200	120	1.00											
Hudson, C. Mining Co.	14,308		14,308	0	0	110	200	120	1.00											
Hutchinson Mining Co.	111		111	0	0	30	100	120	1.00											
Keyston Lead & Zinc Co.	1,110		1,110	20	0	30	100	120	1.00											
Knoxville Mining Co.	1,225		1,225	20	0	180	200	120	1.00											
Norfolk Little Four	14,074		14,074	20	0	180	200	120	1.00											
Norfolk Mining Co.	10,420		10,420	20	0	100	120	120	1.00											
Reading Mine	600		600	20	0	100	120	120	1.00											
Reading Mining & Smelting Co.	3,078		3,078	20	0	120	120	120	1.00											
Seaboard Lead & Zinc Co.	14,301		14,301	20	10	170	200	120	1.00											
St. Paul Mining Co.	23,080		23,080	40	10	130	160	120	1.00											
Shoof Creek Mining Co.	10,024		10,024	20	10	180	180	120	1.00											
Spring City Mining Co.	1,242		1,242	12	12	120	180	120	1.00											
South Shovel Creek	1,383		1,383	2	0	100	140	120	1.00											
	\$407,790		\$407,790	600	100	2,400	3,400	217												
	\$101,040		\$101,040	100	100	2,400	3,400	217												

Office number.....

EMPLOYES, EQUIPMENT, TONNAGE AND VALUE—Continued.

[illegible]

ST. FRANCOIS COUNTY.

Name of mine, owner or company.	Am't received for	Machinery employed.										Av. wages other help...	Av. wages, miners.....	Av. No. men prospec'ng	No. days worked on development work.....	No. days worked producing ore.....	Av. number of other employes.....	Av. number of miners employed.....	Total am't received for lead and zinc ore.....	
		Lead ore.....		Zinc ore..		No. of hand jigs..	No. of steam jigs.	No. of crushers...	No. horse hoisters	No. steam hoisters	No. air compres'rs									No. steam pumps.	No. steam boilers.	Noj h'd jig plants.	Concen'ing plants.
	1	Central Lead Co.....	482,694	100	150	310	.....	4	\$1 55	.....	1....	1....	14	4	3	2	5	38	.....
	2	Columbia Lead Co.....	122,514	00	100	90	140	4	1 50	.....	1....	1....	6	5	2	2	5	32	.....
	3	Desloge Consolidated Lead Co.....	477,371	150	150	300	.....	20	1 55	.....	1....	1....	10	20	2	3	4	52	.....
	4	Doe Run Lead Co.....	540,350	249	123	308	.....	.....	1 55	1 65	1....	1....	27	23	2	3	7	41	.....
	5	St. Joseph Lead Co.....	823,282	582	35	308	.....	18	1 71	.....	1....	1....	22	25	6	8	10	110	.....
	6	The Union Lead Co.....	1,585	20	10	65	133	10	1 50	1 45	1....	1....	2	1	1	1	1	1	.....
		Totals.....	\$2,447,736	1,161	805	1381	273	56	.....	.....	6....	6....	81	79	16	18	29	273	.....
	Office number.....																			

EMPLOYES, EQUIPMENT, TONNAGE AND VALUE—Continued.

WASHINGTON COUNTY.

Name of mine, owner or company.	Av. price rec'd per ton, dry-bone		Av. price rec'd per ton, lead		Tons lead ore produced, dry-bone		Tons lead ore produced, lead		Av. price rec'd per ton, silicate.....		Av. price rec'd per ton, zinc		Tons zinc ore produced, silicate.....		Tons zinc ore produced, zinc		Shafts operated, aver- age depth.....		Shafts operated, aver- age number.....		Capital invested in land and plant.....		Acres of land leased or owned.....	
Boulton, Geo. D.....			50 00				425								60		6				240,000		8,000	
Remant Lead Co.....			50 00				1,204 2								35		35				54,000		10,624	
Shibboleth Lead Mining Co.....			47 00				1,210								35		20						1,760	
Sundry Farmers-furnish Smelters.....			45 00				3,127 2								27		86						20,964	
Totals.....			47 80														147				294,000			

WASHINGTON COUNTY.

Name of mine, owner or company.	Machinery employed.		Av. wages, other help..		Av. wages, miners.....		Av. No. men prospect'ng		No. days worked on de- velopment work.....		No. days worked pro- ducing ore.....		Av. number of other employees.....		Av. number of miners employed		Total am't received for lead and zinc ore.....		Am't received for	
	No. of hand jigs...	No. of steam jigs.	No. of crushers...	No. horse hoisters	No. steam hoisters	No. air compres'srs	No. steam pumps,	No. steam boilers.	No. h'd jig plants.	Concen'tng plants									Lead ore.....	Zinc ore.....
Boulton, Geo. D.	1																21,250			
Remant Lead Co.																	12,300			
Shibboleth Lead Mining Co.																	12,300			
Sundry Farmers-furnish Smelters.																	54,450			
Totals	1																\$140,471			

Av. price rec'd per ton, dry-bone.....
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*Estimated.

EMPLOYES, EQUIPMENT, TONNAGE AND VALUE—Continued.

COUNTIES IN WHICH ORE IS PRODUCED FROM PROSPECT WORK AND THE WORK OF FARMERS.

Name of mine, owner or company.	Am't received for		Machinery employed.										
	Zinc ore.....	Lead ore.....	Total am't received for lead and zinc ore.....	Av. number of miners employed.....	Av. number of other employes.....	No. days worked producing ore.....	No. days worked on developing work.....	Av. No. men prospect'ng.....	Av. wages, miners.....	Av. wages other help.....	Concen'ing plants.	No. h'd jig plants.	No. steam boilers.
Benton county.....	\$2,676	\$4,708	\$7,384	27	6	.....	275	.....	\$1 25	\$1 50	.....	.....	.....
Camden	486	1,406	1,892	20	3	.....	220	.....	1 25	1 50	.....	.....	.....
Cole	215	3,828	4,043	22	4	.....	270	.....	1 25	1 50	.....	.....	.....
Hickory .....	.....	3,300	3,300	18	2	.....	300	.....	1 25	1 50	.....	.....	.....
Miller	137	2,728	2,865	22	3	.....	280	.....	1 25	1 50	.....	.....	.....
Taney .....	.....	2,630	2,630	13	1	.....	160	.....	1 00	1 25	.....	.....	.....
Webster .....	.....	1,628	1,628	13	1	.....	240	.....	1 25	1 50	.....	.....	.....
Totals.....	\$3,514	\$18,348	\$21,862	135	20	.....	1,745	.....	.....	.....	.....	.....	.....

ACCIDENTS.

The past year while showing our largest production of lead and ores, also shows the largest number of accidents occurring in any year; but the accidents are out of proportion with former years. There were a total of 79 accidents, of which 52 were fatal and 27 non-fatal; 73 per cent. of the fatalities were preventable, while 55.55 per cent. of the non-fatal were avoidable. This shows great carelessness, and better evidence of this fact can be presented than that there were accidents due to tamping dynamite with metal bars—a practice universally condemned as extremely dangerous, and one that is discouraged or forbidden by almost every operator. The accidents resulting from these causes are, as a rule, the most fearful and horrifying in their nature, yet miners in the face of all this will persist in the use of the metal bars, always, of course, trusting to their good luck pulling them through. Careless handling of dynamite (not in a mine, but on the surface) resulted in the death of 5 men; allowing hot grease from a miner's lamp to fall into a box of caps, returning too soon on shots that did not explode as soon as it was thought they should, drilling into old shots, men hoisting out of shaft and being caught in the machinery—are causes which are largely responsible for the accidents of the year, and because 53 accidents out of a total of 79, that might have been avoided. If these accidents are without any connection whatever with the lack of proper management of the mines, leaving 26 accidents due solely to falls of roof, and classed as unavoidable. Falls of roof in all kinds of mining is the most prolific cause of accident, which is accounted for in great measure by unexpected changes in the character of the rock, unnoticed too often until it does its serious work. The roof of mines in the Southwest is altogether different from that of the East—especially in St. Francois county—the roof is usually very solid; but even here faults and crevices occur in the roof requiring at all times the greatest care on the part of the management keeping it safe or free from falls. St. Francois county for our last year shows but one accident, and yet there were 1,161 miners at work continuously. In no other mining section in any state can such a record be found.

ACCIDENTS IN GREENE COUNTY.

Walter McCloskey and Guy Mounce fearfully injured by an explosion of dynamite January 30, 1900.

The two unfortunate men were at the time of the accident engaged in sinking a shaft. It had been noticed by a brother of one of the injured men that their manner of handling dynamite was careless and reckless, and he warned them of their danger. At the time of the accident both men were in the shaft tamping a shot preparatory to firing a blast, and both were at work over the spot when the premature explosion occurred. Mr. Mounce had both arms torn off, his eyes put out and his head and body otherwise horribly mutilated. Mr. McCloskey lost both eyes and an arm. The chances are that this is another instance of the danger in tamping a shot with a metal bar.

RECORD OF ACCIDENTS OCCURRING IN JASPER COUNTY.

Accidental death of Edward Rice, July 6, 1899.

Edward Rice was accidentally killed while working in the Smith & Ferth mine on lot 118 of the Centre Creek Mining Co.'s land at Webb City, Mo. The mine was being operated by A. Rayans, who has it leased from the above company. The report of the accident was not very complete, but from the best information obtainable, it appears that the deceased had only recently secured employment at the mine and was not very familiar with the ground and while standing on a platform using his pick, a small boulder fell from the roof, killing him instantly. The coroner's verdict was "purely accidental."

John Richards asphixiated, July 15, 1899.

Deceased, with his partner, was working in a shaft 155 feet deep, at the bottom of which was a drift seventeen feet by seven feet high and seven feet wide, supplied with an air flume, air sail and ladder from top to the bottom. The deceased neglected to test air in bottom of shaft before commencing work, though he knew the air was foul; his partner was not affected at all by the air and had he not been afflicted with Asthma he would not have been overcome. He died on top in the presence of the doctor. No inquest.

Accident death of J. Routt, July 19, 1899.

J. Routt was killed in the Little Circle mine at Oronogo, by falling boulder. Deceased was at work in the mine as a shoveler

When a boulder fell from an adjoining pillar, striking him on the head. The young man was single and 22 years of age, and carried accident insurance. Coroner's verdict is given as killed by unavoidable accident, and no blame could be attached to any one."

J. C. Jarvis and Claib Guinn killed and John Pullweiler slightly injured, July 21, 1899.

J. C. Jarvis, a married man 52 years of age, and Claib Guinn, single man 31 years of age, were instantly killed and John Pullweiler was slightly injured in the Ethel E Mine on North Heights at Berlin, Missouri. The ground was considered perfectly safe, but a large amount of rain had fallen during the preceding few days and the ground had become soft and spongy in spots. The three men were working together in the drift when, without warning, a great mass of earth and rock fell from the roof, instantly killing Jarvis and Guinn and slightly injuring Pullweiler, whose worst injuries were a broken rib. Jarvis was employed as a ground foreman and had no insurance; Guinn carried insurance of \$2,000 in the Modern Woodmen of America. The coroner's jury returned a verdict of accidental death with no blame attaching to the owners or operators of the mine.

Odin B. Romans instantly killed July 22, 1899.

A fatal accident took place in the ground of the Pilgrim Mining Company, at Cave Springs, resulting in the death of Odin B. Romans, a single man 22 years of age. He carried accident insurance of \$1,000 in the A. O. U. W. He was employed as a speck head, and was working in a drift shafting when, without warning, a great mass of dirt and boulders fell from the roof, striking him on the head and causing instant death. A number of men were working in the ground with him went to his rescue and he was hoisted to the surface, where he was pronounced dead. The coroner's jury returned a verdict of accidental death with no blame attaching to the owners or operators of the mine.

Edward Skaggs instantly killed July 23, 1899.

The deceased had been working in the drift shafting and was working in the drift shafting when, without warning, a great mass of dirt and boulders fell from the roof, striking him on the head and causing instant death. The coroner's jury returned a verdict of accidental death with no blame attaching to the owners or operators of the mine.

Accidental death of Sam Kurtright, August 18, 1899.

This accident occurred near Jackson Station. Deceased and J. M. Gilbert were sinking a shaft on contract for Thos. Hardwick and J. J. Luck of Galena, Kansas. The two men had been working together for several days and had the shaft down about 62 feet. A horse hoister was being used, and as only the two men were engaged on the work, they took turns in working in the ground. About 3 o'clock in the afternoon, Gilbert came out of the ground and Kurtright went below, when the hoisting was resumed. The first tub had ascended but 15 feet when the nut which holds the bolt on which the sheave wheel works gave way, letting the wheel, tub and rope fall to the bottom where Kurtright was working. The tub struck the unfortunate man on the top of the head, splitting his skull open and when Gilbert reached the bottom by sliding the rope, the wounded man's brains were oozing out. With assistance from an adjoining shaft, Kurtright was sent out of the shaft, but expired just as he reached the surface. An inquest was held by Justice Fletcher, who returned a verdict in accordance with above.

Accidental death of Zeph N. Jones, August 22, 1899.

Zeph N. Jones was instantly killed at the "Budweiser" mine on the Cable ground at Tuckahoe, by falling from the tub into the shaft, a distance of 70 feet, as he was being hoisted to the surface. He had complained of being sick all the morning and when he came out of the ground at noon seemed to be affected by the powder smoke from some shots that had been fired just before noon, but he went into the ground again shortly after 1 o'clock and as soon as he reached the bottom he asked to be hoisted out and was about seventy feet above the bottom of the shaft when he let go of the hoisting rope and fell from the tub to the bottom, fracturing his skull and breaking several bones. Jones was a single man 20 years of age and resided with his parents south of Joplin. The coroner, after making an investigation, decided that an inquest was unnecessary.

THE CARTERVILLE DISASTER.

The most frightful disaster during the fiscal year which falls to us to report occurred on August 25th, 1899, at the "Margeurite" mine, about one mile south of Carterville, in which five men lost their lives and were literally blown to atoms and a new mining plant completely destroyed. Those killed were Henry Gilbert, Frank Huddleston, Thos. Holman, David J. Sinclair and C. H. Robbins. The plant had been recently erected but had not started up, although steam was kept up to

keep the water out of the ground so that the men could carry on operations under the ground. A good mine had been developed and since the plant had been completed, negotiations were in progress to sell it to David J. Sinclair of Duluth, Minn., C. H. Robbins being the promoter. Among the men employed in and about the plant were Thos. Holman, ground foreman, Frank Huddleston, engineer and blacksmith, Andy Riggsby, hoisterman, and John Black, the blacksmith's helper. At about 3:30 p. m. of the above date, Henry Gilbert, superintendent and part owner of the mine, came out of the ground with Holman, the ground foreman, who came up to prepare some shots preparatory to firing them at the close of the day's work. Just previous to this time Robbins and Sinclair arrived at the plant and were conversing with Huddleston, the engineer. The only survivor of the terrible affair who was able to give any definite information as to the probable cause of the accident was Riggsby, the hoisterman. His account of the accident is in substance as follows: Immediately after hoisting Gilbert and Holman out of the ground he commenced pulling water with the steam hoister. The hoister derrick, though in the same building as the other machinery, was about 20 feet high and about 25 feet from where the group of men were standing. After pulling a few barrels of water, Riggsby sat down upon a box in the hoister house and was watching the men (Gilbert and Holman) in the engine room below. Holman, the ground foreman, sat down upon a box of powder and picked up a coil of fuse and proceeded to cut off several pieces the proper length for his shots. The stock of powder consisted of two full boxes that had been brought out that afternoon, and the greater portion of another box that was already on hand. Contrary to good judgment, the dynamite was kept between the boiler-head and the blacksmith's forge, (we are informed) the distance between the blacksmith's forge and the boiler-head being, it is said, from 10 to 12 feet. As is well known, dynamite explodes much easier when heated than cold, and its chances for becoming heated between a boiler-head and forge, as mentioned, is very good. Riggsby says he saw Holman, after cutting off pieces of fuse, reach over behind a water barrel and get a box of caps, and after placing one of them on a fuse, proceeded to crimp it on by biting it with his teeth. This accomplished, he picked up another cap and fuse, and was in the act of connecting them when, Riggsby says, the hoister rope commenced to shake and thinking that some of the ground men were hooking on a tub, he turned his head to see what was wanted. This was the last he remembered until some moments later, when he found himself staggering about on the ground some 30 to 40 feet from where the plant formerly stood, then looking toward the plant beheld a total wreck with

remains being rapidly devoured by flames. John Black, the blacksmith's helper, who was in the hoister house with Riggsby, was found at the mouth of the shaft in an almost unconscious condition from the terrible shock, but soon recovered. Of the other five men none of them lived to tell the tale and it is doubtful if any of them ever realized what happened. Thos. Holman, who was probably the innocent cause of it all, was found, or the biggest pieces were found, some 15 or 20 feet away from where he sat on the powder, the largest pieces being a foot and a part of his face. He was literally blown to pieces. It seems that all the other men were standing up in a group near Holman, and nearly all their legs were blown off. Sinclair was found about 50 feet west of the plant with both legs blown off at the hips and otherwise horribly mangled. Gilbert was found about 25 feet further west and was torn to shreds. Robbins was found a short distance north of Gilbert and was mutilated almost beyond recognition. Huddleston was blown out on a big dump pile about 150 feet away from where he formerly stood. Immediately after the explosion, the remains of the mill seemed to take fire as if oil had been poured on it, and in a very short time was entirely consumed. The men who were left in the ground at the time of the accident, were safely hoisted to the surface from another shaft which had been connected with the mill shaft for air. Henry Gilbert was 32 years of age and left a wife, but had no children. He resided at Carterville and was a member of the "Odd Fellows" and "Woodman of the World." Thos. Holman was a resident of Prosperity and was also an "Odd Fellow." He was 28 years of age and left a wife and two children. Frank Huddleston was 27 years of age and left a wife and two children. He resided at John's Town, a suburb of Carterville. C. H. Robbins, another victim of the accident, came to Joplin with his wife from Tulsa, Ind. Ter., about three weeks before. He was a promoter and had accompanied Sinclair to the mine for the purpose of selling it to him. Sinclair's home was in Duluth, Minn. He went to Joplin, we are informed, as the superintendent of a copper and iron company with a view to making investments in zinc properties.

Coroner Whiteley held an inquest, which developed facts in accordance with above. His jury returned a verdict as follows:

"We, the jury, find that David J. Sinclair, Henry Gilbert, C. H. Robbins, Thos. Holman and Frank Huddleston came to their deaths from a powder explosion while Thos. Holman was preparing shots, and it is supposed from the evidence adduced, that the explosion was caused *from the explosion* of a cap which he was placing on a fuse. Said accident occurred at the "Margeurite" plant on the "Richland lease."

Walter Bradley and Chas. Shafer seriously injured by premature explosion, October 2, 1899.

The injured men were employed by the Sunday Mining Co., at the respective positions as drillman and backhand and at the time of the accident were tamping a shot. Walter Bradley was doing the tamping at the time and using a metal bar for that purpose, as so frequently happens when this kind of a tamping bar is used an explosion took place. Bradley received a portion of the blast directly on his face, neck and hands; his right eye was knocked out, his left eye and nose badly injured and his hands severely burned. Shafer was slightly burned in face and eyes. This is a case of carelessness pure and simple, as all miners of the least experience must know the danger attending the use of metal bars in tamping shots. The numerous accidents resulting from this cause should of itself warn miners to say nothing of the warnings continually given by prudent men.

J. O. Seargent instantly killed, October 3, 1899.

The deceased was employed as a shoveler in the mines of the Boston-Joplin Mining Co., at Carterville. He was 23 years of age, single and a member of the I. O. O. F. While engaged at his work and without warning a boulder fell from the roof, killing him instantly. The coroner's verdict was, unavoidable accident.

Death of John L. Williams, by asphyxiation, October 9, 1899.

John L. Williams, a single man 24 years of age, met death in a shaft on the Mo. Lead & Zinc Co.'s land. At about nine o'clock in the morning above mentioned, Williams, who had just been placed in charge of the mine, went down into the shaft preparatory to firing a shot. A man named Gilbert, who had been working with Williams, warned him against making the attempt until the shaft could be cleared of foul air. The young man thought he could stand it, however, and started down by sliding the rope. When he failed to return, it was surmised at once that he had been overcome with foul air and the work getting the shaft ready for the descent of rescuers begun. It was 2:30 o'clock p. m. before the body was recovered and in the meantime Deputy Coroner Fletcher had been notified and went to the mine to make an investigation, which developed the fact that Williams was a new man to the work and did not realize the danger he ran in going down into the shaft, which was 135 feet in depth. It is evident from the circumstances attending the finding of the body that Williams had gone down and attended the work he had started to do, but had been overcome before getting into the tub to be hoisted back to the top of the ground. *This mine was known as the Mable P.*

Accidental death of James D. Daniel, October 24, 1899.

James D. Daniel met instant death in a shaft on the "Pinkard" land east of Joplin. Deceased, who was a married man and 58 years of age, was at work sinking a shaft, and was down in the ground when the accident happened which cost him his life. E. V. Whitney was running the hoister and had taken the tub off the rope and put on a water barrel which was standing beside the shaft. In pulling up the slack of the rope, the barrel was unhooked and dropped into the shaft, falling 60 feet and striking Daniel on the head. His skull was crushed, and death resulted almost instantly. Deputy Coroner Fletcher made an investigation of the accident, which developed the above facts. Deceased carried no insurance, and left an invalid wife with four children.

Death of Jim Fering, caused by blast, November 18, 1899.

James Fering, aged 55 years, was instantly killed at the O'Neal shaft on the Reding land shortly after 11 o'clock on November 18th, 1899. He had gone down into the shaft to relight the fuse of a shot he supposed had failed to become ignited, and before he had time to escape, the explosion occurred. Fering and a man named Isaacs were sinking the shaft on contract when the accident occurred. One shot had been fired and they were waiting for a second about 11 o'clock, and when the explosion failed to occur, Fering decided to go down into the shaft. Isaacs, it appears, tried to persuade him not to do so as he thought it would be best to wait until after dinner, by which time the smoke would be cleared from the shaft and allow them to work in safety. Deceased insisted, however, and was lowered into the shaft, which was about 85 feet in depth. He had scarcely reached the bottom when Isaacs heard him cry: "take me up quick." Just as the hoister was started, however, the explosion occurred, and he fell back from the tub. His back and shoulders and the back of his head were shattered by the shot, and death must have resulted instantly. It is presumed that when he reached the bottom of the shaft he saw the fuse glowing and realized his danger, but it was then too late to escape. The accident occurred in Newton county about six miles south of Joplin.

Accidental death of E. C. Lozier, November 27, 1899.

E. C. Lozier was almost instantly killed in a shaft near Cave Springs on the Carroll County Mining Company's lease. Lozier was at work in a shaft, which was being sunk, with C. W. Blakely, who was an intimate friend of his, in charge of the steam hoister above. In some way, the tub became detached from the hook and fell to

the bottom of the shaft, striking Lozier and crushing his skull. He was quickly taken to the surface and a physician summoned, but he was fatally hurt and died six hours after the accident occurred. While this accident may have been unavoidable, we have a great many occurring by reason of tubs becoming detached from hooks, and the fact cannot be questioned that if greater care were exercised by those in charge of hoisters and tubs above ground, fewer of such accidents would occur.

Deceased was a single man, 36 years old, and came to the vicinity of Joplin about the month of last July.

Fatal accident to Fred Millot, December 9, 1899.

The fatal accident to Fred Millot occurred on the Missouri Lead & Zinc Co.'s land near Joplin. Deceased with four other laborers were at work moving a car of coal into place for unloading, when a K. C. P. & G. R'y switch engine came in on siding, it is said without warning, and bumped into the line of cars which was standing on the track, catching Millot between the bumpers of the cars and crushing his hips and bowels. The deceased was 38 years old and married.

The coroner's verdict was, "Death due to carelessness of employees of K. C. P. & G. R. R. Co."

Fatal accident to Joseph Fry and Ed. Overton, December 26, 1899.

Joseph Fry and Ed. Overton were killed at the Chicago-Joplin Lead & Zinc Co.'s mine near Prosperity. These unfortunate men went to the mine in the morning to go to work in the ground. They got into the tub to be lowered into the shaft by the hoisterman, who was a man named Cross, about 60 years old. When they had reached considerable depth in the shaft, the hoisterman got frightened by a fire started from an overturned torch, when he reversed the hoister and the men were pulled to the surface at a high rate of speed, and when they reached the mouth of the shaft, Cross was so badly rattled that he neglected to stop the hoister and the men were carried up to the top of the derrick, which they struck with such great force that the bail of the tub was broken off, causing the men to fall back into the shaft, a distance of about 170 feet. Cross was so distracted over the horrible accident that the coroner was unable to get a satisfactory statement from him until sometime after the accident. After a full investigation by coroner Whiteley, he rendered the following verdict:

"I, W. M. Whiteley, coroner of Jasper county, after two days' diligent search and inquiry, find that Ed Overton and Joseph Fry came to their death by the hoisterman becoming frightened out of his mind."

through his coal oil torch upsetting on the floor of the hoister and catching fire, and that he did not see them ascending in the tub until their heads struck the sheave wheel with great force, killing them instantly."

Accidental death of C. L. Cox, January 11, 1900.

The accident which caused the instant death of C. L. Cox occurred on January 11th, 1900, at the Eddington Mining Company's mine, about four miles southwest of Joplin. From the information obtained, Cox met a horrible death as a result of his own carelessness. Deceased and two other miners were working in a drift at about the 85-foot level and were preparing to put off some shots, and as the last hole was being spooned out, he repaired to the drift, a safe distance away, where the powder and caps were kept to prepare the shots. He was all alone at the time and out of view of his companions, but all of a sudden there was a loud explosion which caused a portion of the roof to fall, and both workmen at the head of the drift were knocked down by the concussion. There is reported to have been a full box of caps and about 80 sticks of powder exploded, and it can only be accounted for by the hot grease theory, which was undoubtedly the cause. It is said that Cox's lamp was in a leaking condition and it is supposed that when he leaned forward the grease came in contact with the caps and caused the explosion. Deceased was literally blown to pieces. It is the same old story over again, the unfortunate man being but one of the many good miners who have lost their lives by the same accident, when a little care and forethought would have averted it. As soon as the explosion took place assistance was rendered promptly to those under ground and the other two men were found in a drift where they were knocked down by the concussion and had not yet recovered from the terrible shock. They were promptly taken to the surface, but were not seriously hurt. The mangled remains of the deceased were hoisted to the surface and taken to his home, about 500 yards away, after which the Newton county officers were notified. The verdict was, "Accidental explosion with no blame to operators; hot grease falling on caps and exploding same." The deceased was 45 years of age and carried no insurance. He left a wife and seven children.

George Cox, John Stone and Charles Stone seriously injured by a cave in at the Blue Bird Mine at Carterville, January 11, 1900.

Of the three men injured, two of them, George Cox and John Stone, were very severely hurt. Charles Stone had his arm broken and was considerably bruised about the body. The men at work in this mine had quit work for the day, and six of their number, who

orked in the ground, had already been hoisted out, when, without warning, the cave in occurred. The three unfortunate men were in the tub and were being hoisted out at the time of the accident. The shaft is 135 feet deep and was cribbed down to a distance of 30 feet when the solid rock was reached. The cave in was the result, as nearly as the facts could be ascertained, of the earth back of the cribbing breaking way and pouring into the shaft. George Cox and John Stone, two out of three men in the tub, after having been hoisted to within 10 feet of the surface, were knocked out of the tub by falling material and fell to the bottom, a distance of 85, and were covered up by the dirt as it continued to fall. Chas. Stone hung to the tub and was hauled to the surface.

The men yet in the mine discovered what had happened, and though the material was still falling, heroically went to the rescue, they placed out to one side what they supposed to be the dead body of Cox, and hearing Stone's voice, they kept up the good work in spite of the falling earth and succeeded in extricating him. The men still in the mine made their escape through another shaft sunk on same drift.

Benj. Blankenship, Chas. Blankenship and John Holden were all more or less injured by a fall of boulders, January 20, 1900.

The three men were working in a drift, when suddenly and without the least warning, a mass of boulders fell out of the side of the drift; there being considerable soft mud in the drift more than likely ended the lives of the three men. Benj. Blankenship had his knee partially dislocated and was injured internally. The other two were more fortunate.

Accident to Thomas Franklin, February 2, 1900.

This accident occurred at W. T. Lytle & Company's "Blue Bird" mine on the Center Creek ground near Webb City. Franklin was employed as a shoveler in the ground and was stooping over in the act of raising a shovel of dirt, when a small boulder dropped from the roof, striking him on the back of the head and left shoulder, killing him instantly. He carried no insurance and left three children. The roof of this mine is reported to have been examined and pronounced safe the morning of the accident. No inquest is reported held.

Accidental death of Bud Moss, February 11, 1900.

Bud Moss was accidentally and instantly killed in a shaft belonging to Levi Moss & Company, operators on the North Cartersville mines. Moss, with other parties, were sinking a shaft on the Paul

Davey lease, and Sunday morning he and his brother went down into the mine for the purpose of putting in a few shots to open up a drift into another shaft. As the hoister was not running, they slipped down the rope. After placing the shots, they climbed the cribbing a short distance where they remained until the explosion took place. Moss' hat was blown off and he returned to the drift, while his brother went on to the surface, and waited sometime for Bud, but as he did not appear, help was secured and they descended the shaft, and found Bud lying at the bottom of the shaft, which is about 120 feet deep, with his neck broken. The probable explanation is that deceased had climbed up the cribbing 50 or 75 feet and in some manner missed his hold, falling backward to the bottom with frightful force and meeting instant death. The coroner investigated and returned a verdict of accidental death in accordance with the above.

Accident to Chas. Wall, February 13, 1900.

Charles Wall was seriously injured in a mine belonging to the American Zinc & Lead Company at Oronogo, known as the "Gaddis," by a falling boulder. Miners were blasting as usual just before quitting time and all hands had gone behind a pillar for protection from flying rock. While standing there a piece of rock fell out of the roof, which had evidently been loosened by recent shots, and struck Wall on the head. It was thought when report was made of the accident that he would not recover.

Death of Henry Brinkley and Hampton Douse, February 18, 1900.

These men were employed by the La Tosca Mining Company, and met death in a mine operated by that company. The work of cutting two drifts into one was in progress, the object being to secure better air. Douse, who was ground foreman, had put off some heavy shots, and thinking they had probably broken through, he and Brinkley went down to see the result of the work. They found the air bad and at once realized their peril. Both men climbed into the tub to be hoisted to the surface, and the hoisterman proceeded to raise them up. When the tub had been hoisted about 15 feet from the bottom of the shaft, both men succumbed to the foul air and fell back to the floor. When the rescuers, who descended just as soon as it was safe to do so, reached them, both were dead and all efforts to revive them failed. Douse, as well as Brinkley, was an old time miner and experienced in the work and in his position it appears he took Brinkley with him to aid, if necessary, the investigation of the work, which had been in progress for 9 days. Brinkley was a married man, 45 years old and left two children. Douse was a widower 35 years of age and left three

children. Neither of the unfortunate men carried insurance. Coroner made no official investigation.

Duenweg accident caused from the use of steel spoon in tamping shot, February 22, 1900.

As a result of the premature explosion of a shot in the News Boy mine at Duenweg, one man was killed instantly, another very seriously injured, while two others received slight injuries. Chris. Garland was the name of the man killed, while Jason Killibrough had one arm broken, face badly lacerated and the sight of both eyes nearly, if not entirely destroyed. Ed Scott and Will Martin, the other two men, were considerably bruised about the body. The accident occurred about 3:30 in the afternoon when Garland was at work tamping a shot with a spoon. There are reported to have been eleven stricks of dynamite in the hole when through carelessness probably, the explosion occurred. The effect of the explosion was terrible. Garland was blown a distance of about 25 feet and was frightfully mutilated and instantly killed. Four men were working in the mine with Garland at the time of the accident. They were Killibrough, Scott, Martin and Lax Freidman. Freidman escaped without injury, but the other three suffered from the flying debris and the force of the explosion. Garland was a married man about 39 years old and left a wife. He carried no insurance. After an investigation the coroner rendered the following verdict: "We, the jury, find that Chris. Garland came to his death by an explosion caused by his own hand while tamping a shot with a spoon at the News Boy mine at Duenweg, Mo., and that no responsibility is attached to any one for said explosion and accident."

William Boggs seriously injured, February 23, 1900.

Will Boggs was in the service of the Russell Irvin Zinc Company, as a miner and working as a cutter; he had an experience in the mines for several years at least. A shot had been put off in the top of a pillar and after waiting the usual time the men returned to work. Boggs approached the side of the pillar and stooped to take up a pick. While in the act of stooping a boulder fell from above and struck him on the head, fracturing his skull. If the precaution at all times demanded in such cases had been taken it is quite probable the accident would have been avoided.

ACCIDENT NEAR CARTERVILLE.

Ezra Molesdale and F. Laybruyere killed, March 3, 1900.

One of the most horrible accidents of the year occurred in shaft No. 7 of the Homestead Lead & Zinc Co.'s land near Carterville, wherein

two men were scalded to death by escaping steam or suffocated by gasses. The men were working night shift and had fired two heavy shots just before going to the surface for their midnight meals. The force of the shots broke the pipe conveying steam to the pump and the signal line to the engineer, but of this they were unaware. When the men prepared to descend again into the mine they told the engineer to turn on the steam when they arrived at the bottom. He did so and awaiting for a signal from the two men, but none came. Becoming alarmed the hoistmen pulled up one of the tubs without being signaled, and in it was found the dead body of one of the miners. With the assistance of others, the men on top descended into the shaft and found the other man dead near the place where the tub landed. It is supposed the men descended into the shaft and were suffocated or scalded by the steam escaping from the broken pipe. In their deadly danger they were cut off from all hope of relief by the broken bell cord that would have saved them if it had been intact. The names of these unfortunate men were Ezra Molesdale, a single man about 33 years old, and F. Labruyere, a married man about 33 years of age, and who carried \$2,000 insurance. The coroner's decision was that the men came to their death either by being scalded to death by escaping steam or that they were suffocated by gases arising from the explosion.

Accidental death of G. S. Miller, April 12, 1900.

This accident occurred at Lytle & Company's shaft, known as the "Blue Bird" on the Center Creek Co.'s ground near Webb City. G. S. Miller, the unfortunate man, was employed as a cutter in the ground and while thus engaged a rock fell from the roof of the drift, which struck him on the back of the head, killing him almost instantly. When the rock struck him he fell headlong down the slope, a distance of about ten feet and died ten minutes later. It appears that heavy shots had been put off and Miller warned to keep away from this particular place until the roof was trimmed, but did not heed the warning. He was a single man, 36 years old and carried no insurance. The coroner's verdict was accidental and unavoidable.

Accident to John Capp, April 24, 1900.

This accident occurred north of Joplin, in a shaft owned by the deceased and others and located on the Jim Balen land. Capp was working in the ground and had about finished his day's work. He had just sent up a tub of rock and was standing in the bottom of the shaft. A horse hoister was being used and when the tub reached a distance of about 35 feet from the bottom, the wire which held the lever

the hoisting gear broke, letting the hoister out of gear, which allowed the tub to drop to the bottom of the shaft. Capp received the full force of the tub on the shoulder, breaking his shoulder, collar bone and ankle, besides receiving other serious injuries. The unfortunate man was immediately removed to his home, when medical aid was summoned. The injuries were of a very grave character, but he lived till the 11th of the following month.

Fatal accident to R. E. Timlin, April 27, 1900.

R. E. Timlin was almost instantly killed in the Arkansas Mining Company's shaft, just to the southeast of Webb City. He was working in the ground and had just sent up a tub of dirt and was carelessly standing in the shaft, which was contrary to the rules and good judgment. When near the top of the shaft, the tub knocked against the side and some small rock fell out and one of these rocks struck Timlin on the top of the head and penetrated the brain; he lived but a short time. Timlin had just begun to work for company on night shift and had worked only about three hours. He was about thirty-five years old, and left a wife with one child. The coroner's verdict was to the effect that Timlin came to his death by his own carelessness.

Fatal accident to C. B. Hedrick, May 2, 1900.

C. B. Hedrick received injuries while working in a shaft on the "Perry Lease" near Joplin, from which he died a short time later. At the time of the accident Mr. Hedrick was working on a platform in the shaft, when a boulder weighing from 500 to 600 pounds fell, struck the platform and knocked it to pieces, allowing Hedrick to fall into the shaft, a distance of about 80 feet. The unfortunate man had his head badly crushed, besides several ribs broken. A physician was immediately called, but the injuries sustained were too severe to allow his recovery. Hedrick was told to brace the boulder so it would not fall down into the shaft. He removed the cribbing poles and cut the boulder loose so that it fell directly onto the platform on which he was standing. The inquest was reported.

Accidental death of J. D. Sandridge.

J. D. Sandridge was killed in the Eureka mine of the Colonial Lead and Zinc Company at Zincite on May 16th, 1900. From the testimony given at the coroner's inquest, Sandridge, who was an unmarried man about 22 years of age, was working in the drift, when about five tubs of dirt fell from the side of the drift without warning and almost buried him. He was immediately removed to the surface, when it was

that life was extinct. The ground was examined that morning by the ground foreman and considered all right. The coroner rendered a verdict of unavoidable accident with no blame attached to any one.

Accident at Gray Goose Mine, May 21, 1900.

This accident occurred at the mine known as the Gray Goose mine, near Carterville, and owned by the Joplin & Galena Lead & Zine Company. The accident was caused by a shot which was placed in the mine a day or two previous with others and failed to explode. W. Wilkie and W. Livengood were the unfortunate men injured. Wilkie and Livengood were working a compressed air drill and had drilled two holes, and were starting another when the end of the drill struck the unexploded shot. The explosion which followed was terrific and every lamp in the drift was extinguished. Livengood and Wilkie were thrown to the side of the drift and when lights were relit, the men were found trying to get to their feet. The others working in the mine were uninjured though badly shaken up. The injured men were immediately taken to a physician where they were properly cared for.

Death of John M. Shipley, June 11, 1900.

This accident occurred in shaft No. 138 on the Center Creek ground. The deceased, John M. Shipley, was sinking the shaft and had prepared a shot; he had wound wicking around the end of the fuse and saturated it with coal oil, after which he lit the wicking and was hoisted to the surface. The wicking burnt off, but the shot did not go. He prepared another and was again let down the shaft and just as the tub, in which he was being lowered, reached the bottom, the shot went off. He was not blown out of the tub and immediately shook the rope, which was a signal to be hoisted out, and was hoisted to the surface. He did not appear badly bruised, but the shock was too great for him and he died two hours later. This is another instance wherein a good citizen lost his life from the use of fuse in sinking a shaft. Fuse is often defective and should at no time be used for the purpose of sinking shafts. Mr. Shipley was a married man, 40 years of age, and carried \$2,000.00 insurance, and was a member of the Knights & Ladies of Security.

Accidental death of Frank Robinson.

Frank Robinson met almost instant death at the Big Six Development Co.'s mine, situated on the Continental Zinc & Lead Mining & Smelting Co.'s land, just west of Joplin on June 19th, 1900. Robinson was part owner of the mine and had gone down into the ground to

repare three shots. He lighted the fuse of each and was hoisted to the surface. He told his associate workmen that he heard only two of the fuses hiss after lighting them, and that he was satisfied that the third had not been ignited. After the explosion of two shots he jumped into the tub, ordered the hoisterman to lower him into the ground and ascended to relight the fuse of the third shot. With lamp in hand he went where the third shot had been placed and stooped to light the fuse. As he did so the delayed explosion occurred and the force of it struck him in the face, tearing off the upper portion of the left side of his face and shattering his skull. The injured man was immediately taken to the city, but lived only a few minutes. The certificate of Deputy Coroner Fletcher shows that Robinson came to his death through accident, and that neither the company operating the mine nor any of the workmen was in any way to blame.

Frank Smarr and John Carden killed by premature blast, June 2, 1900.

The accident which caused the death of Frank Smarr and John Carden happened at the Big Circle Mines at Oronogo on June 2nd, 1900. Smarr was tamping a shot and Carden was assisting when the explosion occurred. The shot was being tamped with a piece of gas pipe with wooden plug in end. Smarr was taken out of the mine alive unconscious and died 20 minutes later; he had received the force of the shot in the face and breast. Deceased was 29 years old and left a wife. He carried no insurance. Carden was also immediately taken out of the ground and the only words uttered by him before losing consciousness were "We were tamping a shot." Two miners were working near the unfortunate men when the accident occurred and testified before the coroner's jury that they had seen Smarr and Carden about one-half minute before the explosion occurred, and that Carden was cutting powder while Smarr was putting it in the hole. Carden was found with a heavy boulder crushing his arm and shoulder. He was terribly bruised and died ten hours later. He was a single man and carried no insurance. There appears no direct evidence as to the cause of the explosion, but one theory is, that the hole which was driven with a steam drill into hard ground was not sufficiently cooled, although compressed air had been used for the purpose, and another theory is, that it was caused from the use of the fatal metal tamping bar.

The coroner's report shows the accident to have been purely accidental and attaches no blame to any one.

Accidental death of John P. O'Brien, June 25, 1900.

This accident occurred at the Investor's Mining Company's shaft, just to the southeast of Webb City. O'Brien was working in the mine as a shoveler, and while thus engaged, a small boulder, weighing probably ten pounds, fell from the roof about 35 feet above and struck him on the back of the head as he was getting away. His skull was crushed and he lived only a few minutes. The roof is reported to have been kept thoroughly trimmed and was considered safe. Deceased was a single man about 32 years of age. The coroner's verdict was unavoidable accident.

Fatal accident to Chas. Shumate, June 26, 1900.

Charles Shumate met instant death in a mine owned by the Bay State Mining Company, situated about two miles to the northwest of Joplin, on June 26th, 1900. Shumate and his associate laborer were raising a pump and the deceased had made a sling with which to let himself down into the shaft a few feet, suspending the sling from the steam pipe. He had been warned that the sling would not hold, but with the remark that it was all right, he let himself down. The sling broke and threw him against the steam line; then the heavy wooden clamps on the pump became loosened and in falling struck Shumate and nearly severed his head from his body. He fell almost to the bottom of the shaft, when his body was thrown into a drift and found there with his right leg doubled under him broken and his head hanging over the edge of the drift. His body was removed to the top and Deputy Coroner Fletcher notified, who made an official investigation and returned the following verdict:

"I, W. R. Fletcher, J. P., acting coroner, do hereby certify that having seen and heard all testimony produced, do find that Chas. Shumate came to his death at the Pittsburg shaft on the Bay State Mining Company's ground at Chitwood, while raising a pump, and that said accident was caused by the breaking of a sling which was prepared by himself and no blame is attached to the company or its employees."

JEFFERSON COUNTY.

Thomas Culton killed by a fall of rock July 21, 1900.

The deceased, at the time of the accident, was working for himself on the land owned by the Valle Mining Co. While prosecuting his work, a large rock, which he failed to notice was loose, rolled down on him fatally crushing him. Mr. Culton was 29 years of age and unmarried.

No inquest held, as he lived until the 30th of July.

LAWRENCE COUNTY ACCIDENTS.

Geo. Messick, John Doreibiehls, Robt. Grimmet, killed; Fred Mansfield and Edward Messick injured by a premature explosion at Stotts City, July 24, 1899.

This accident occurred in the Spring River mines at Stotts City, in which three men lost their lives, while two others narrowly escaped. From information obtained, a shot was being hurriedly loaded just before quitting time in the evening, and when about two-thirds loaded, it exploded, killing Robert Grimmet and Geo. Messick instantly and injuring John Doreibiehls so that he died the second day after the accident. Fred Mansfield and Edward Messick, who were also at work in the mine, received slight injuries. The real cause of this accident could not be ascertained, but it is my opinion that the explosion was caused from the use of a steel spoon or metal tamping bar. The management at these mines has endeavored to throw every safe-guard around the employes, and I cannot see wherein any blame whatever can be attached to them for the accident. Grimmet and Doreibiehls were 24 and 26 years of age respectively, and married, while Messick was 22 years of age and single. Each of them carried insurance.

John C. Porter, W. E. Morton, killed, and J. S. Musgrove seriously injured by the premature firing of a shot.

On Saturday afternoon, July 22, 1899, at 4:30, an accident occurred at the Baldwin mine on the Vance land resulting in the death of John C. Porter, a married man, 28 years of age, and W. E. Morton, 28 years of age, also married, and the serious injury of J. S. Musgrove, who will, however, recover.

Morton carried an insurance of \$1,000, but the other two men were uninsured. The coroner was not notified as the death of the two men and the injury to Musgrove was the palpable result of their own carelessness. The men had been putting in a stope shot which had been squibbed scarcely fifteen minutes before and it seems probable that in order to finish their work in the ground promptly at quitting time, they did not give the squib shot time to cool. They had placed 25 or 30 sticks of powder in the hole, and were using a steel spoon, but had put in no priming when the explosion took place, killing Porter at once and injuring Morton so badly that he died immediately after being hoisted out of the ground while Musgrove was seriously injured about the face

NEWTON COUNTY ACCIDENTS.

Fatal accident to Frank Harris, July 28, 1899.

The accident which caused the death of Frank Harris occurred at Troutman & Co.'s mine, near Gregg, Newton county. Deceased and his associate had put off a shot in the face of the drift at the noon hour which loosened the roof, and when work was resumed after noon by Harris at the face of the drift, he heard the ground immediately back of him begin to crack. He started for the shaft just as three or four tons of rock fell which covered him up except his head and shoulders. He is reported to have lived in this condition about ten minutes. Deceased was part owner of the mine and foreman of the ground. The coroner's verdict was "unavoidable accident."

Accidental death of Robert Leper, November 16, 1899.

This accident occurred in the Gabbler mines at Wentworth, Newton county. The deceased was employed as a spade hand in the ground and was standing in the shaft at the time of the accident. In pulling the signal rope to give signal to hoist the steel bar, arranged in connection with a triangle, which formed the signal, became detached from its fastenings and fell, striking Leper on the head. He received injuries from which he died four days later. Deceased was a single man, 22 years old and carried \$2,000.00 insurance.

Accidental death of Newt Larkin, May 10, 1900.

Newt Larkin, a miner living in Gordon Hollow, about four miles southwest of Joplin, met a horrible death at the plant of the Fox River Lead & Zinc Co. Larkin was an engineer at the company's plant, while his brother held the same position for the night shift. On the above morning he went to work as usual at 7 o'clock, and commenced his day's duties by oiling the pump machinery. He was wearing a loose canvas jumper, and in leaning over the pump, the right side of the jumper caught in the cogs. The whirling wheels quickly wound up the strong cloth and drew the right side of his body into the machinery. The whole right arm passed through the cogs and was literally ground to a pulp. The shoulder blade and collar bone were broken into pieces and the breast bone and ribs badly injured. The horror of the accident is made fully evident by the fact that although there was a head of about 80 pounds of steam at the time, the engine was stopped by the crushed and quivering bones of Larkin's arm clogged and crammed in.

the cogs of the machinery. In this position the injured man remained until his brother, who had not had time to proceed far from the plant, heard his groans of anguish. He returned and extricated his brother from his position. Medical aid was quickly summoned and everything possible was done for the unfortunate man, but the shock to the system was too great, however, and he died about nine hours following the accident.

Accident at Bald Knob Mine, July 24, 1899.

Henry Moone, a ground man, employed at the Bald Knob mine at Spring City, Newton county, was seriously but not fatally injured by the premature explosion of a shot in the mine. The shots, four in number, had been prepared and the holes loaded by another miner and Moone, who has had a great deal of experience, in his haste to put off the shots, cut off the fuse which the other man had left a safe length. He lighted the fuse, but it went out and he then relighted them and started to reach a place of safety, but he had cut the fuse so short that the first one exploded before he had reached shelter, and the explosion knocked him down and badly bruised and lacerated his back. He managed to crawl behind a boulder and the other shots exploded without damaging him farther. The superintendent of the mine, Dr. R. C. Thornton, gives substantially the same account of the accident.

Accidental death of Ed Kelsee, at Stotts City C. C. C. Mines, April 28, 1900.

Ed. W. Kelsee was instantly killed while F. M. Hadley and Henry Earnest were seriously injured in the C. C. C. Mines at Stotts City. The accident was the result of the falling of a large slab from the wall of the drift in which they were working. The slab became loosened from about 20 feet above and, without warning, fell upon the men working below. As stated, Kelsee was instantly killed, while Hadley and Earnest each had a leg broken. Kelsee was a single man, and his insurance pays for one-half year's wages. Earnest and Hadley each carried insurance equal to one-half wages as long as disabled.

Accident near Stotts City from use of Metal bar, March 19, 1900.

This accident occurred in a shaft being sunk on the Bower's Mill Mining Co.'s property, about two miles west of Stotts City, Lawrence county, and in the accident two men lost their lives, while the third man was very seriously injured. B. M. Rhodes and Frank Wilson, the two men killed, and Ike Powell, the man injured, were all three in the shaft, which was about 100 feet deep. They had drilled six holes, and

were loading and using a metal sand gun for tamping the shots when one of the shots exploded, killing Rhodes and Wilson and seriously injuring Powell. Rhodes was a married man, 40 years of age and carried no insurance. Powell was 45 years old, and had also failed to carry insurance. No inquest is reported. This accident is another striking evidence that the metal bar should be discontinued for tamping purposes.

ST. FRANCOIS COUNTY ACCIDENTS.

Jack Powell killed by fall of roof, April 6, 1900.

Deceased was 18 years of age, and commenced work in the mines at the request of his father. He was on his second shift in underground work, when he was killed by a piece of back roof four feet in thickness falling on him. There was a fault seam where the fall occurred. This ground was examined each day and was considered safe, and the rock would not have fallen if it had not parted at a fault seam which was perpendicular, showing a smooth polished surface (slikenslide). This accident occurred in the Gumbo shaft of the St. Joseph Lead Company at Flat River.



TABLE VII—Accidents at Lead and

Name of injured person.	With whom employed.	Occupation of injured person.	Date of accident.	Age	Single
Walter McCroskey.	F. M. Mounce.....	Farmer.....	Jan. 30, 1900	29	1
Louis Tronchat....	" " " " " " " "	Laborer.	30, 1900	30	1
Totals.....					1

Edward Rice.....	Center Creek Mining Co..	Miner.....	July 6, 1899	30	1
John Richards.....	J. L. Morrison.....	" " " " " "	15, 1899	51	1
J. Roult.....	Little Circle Mining Co..	" " " " " "	19, 1899	25	1
J. C. Jarvis.....	Ethel E. Mining Co.....	Foreman.....	21, 1899	52	1
Clark Gulnn.....	" " " " " "	Miner.....	21, 1899	31	1
John Fullweiler....	" " " " " "	" " " " " "	21, 1899	40	1
Odin B. Romons....	The Pilgrim Mining Co..	" " " " " "	22, 1899	22	1
Edward Slaughter..	Aurora Mining Co.....	" " " " " "	27, 1899	38	1
Sam'l Courtright..	Monarch Mining Co.....	Contractor....	Aug. 18, 1899	37	1
Zeph Jones.....	Budweiser Mine.....	Miner.....	22, 1899	19	1
A. H. Robbins.....	Marguerite Mining Co....	Spectator.....	24, 1899		
David Jas. St. Clair	" " " " " "	" " " " " "	24, 1899		
Henry M. Gilbert..	" " " " " "	Supt. of mine...	24, 1899	39	1
Thos. Holman.....	" " " " " "	Ground boss....	24, 1899	40	1
Frank Huddleston..	" " " " " "	Blacksmith.....	24, 1899	32	1
Walter Bradley....	Sunday Mining Co.....	Miner.....	Oct. 2, 1899	1	1
Chas. Shafer.....	" " " " " "	" " " " " "	2, 1899	35	1
J. O. Seargent.....	Boston-Joplin Mining Co.	" " " " " "	3, 1899	23	1
Jno. L. Williams...	Mable P. Mining Co.....	Foreman.....	9, 1899	24	1
Jas. D. Daniel.....	Witt, Whitney & Co.....	Miner.....	24, 1899	58	1
E. C. Lozier.....	Carroll County Mining Co.	" " " " " "	Nov. 27, 1899	36	1
Fred Millot.....	Missouri Lead & Zinc Co..	Laborer.....	Dec. 9, 1899	38	1
Joseph Fry.....	Chicago-Joplin L. & Z. Co.	Miner.....	26, 1899	26	1
Edward Overton....	" " " " " "	" " " " " "	26, 1899	27	1
John Stone.....	W. F. Lytle & Co.....	" " " " " "	Jan. 11, 1900	23	1
G. W. Cox.....	" " " " " "	" " " " " "	11, 1900	32	1
Benj. Blankinship..	Consolidated Z. & L. Co.	" " " " " "	20, 1900	21	1
Chas. Blankinship..	" " " " " "	" " " " " "	20, 1900	21	1
John Holden.....	" " " " " "	" " " " " "	20, 1900	26	1
Thos. Franklin.....	W. F. Lytle & Co.....	" " " " " "	Feb. 2, 1900	32	1
Washington Moss..	Levi Moss & Co.....	" " " " " "	11, 1900	30	1
Chas. Wall.....	American Z. L. & S. Co..	" " " " " "	13, 1900	25	1
Henry Brinkley....	La Tosca Mining Co.....	" " " " " "	18, 1900	45	1
Hampton Douse....	" " " " " "	" " " " " "	18, 1900	35	1
Chris Garland.....	Newsboy Mining Co.....	" " " " " "	22, 1900	39	1
Edward Scott.....	" " " " " "	" " " " " "	22, 1900	24	1
Jason Killbrough..	" " " " " "	" " " " " "	22, 1900	40	1
Wm. Martin.....	" " " " " "	" " " " " "	22, 1900	25	1
Wm. Boggs.....	Russell-Irwin Zinc Co..	" " " " " "	23, 1900	22	1
Ezra Molesdale....	Homestead Z. & L. Co.	" " " " " "	3, 1900	33	1
F. Labruyere.....	" " " " " "	" " " " " "	3, 1900	35	1
Wm. Brunk.....	Center Creek Mining Co.	" " " " " "	5, 1900	27	1
C. A. Perry.....	" " " " " "	" " " " " "	5, 1900	29	1
G. D. Miller.....	W. F. Lytle & Co.....	" " " " " "	Apr. 12, 1900	26	1
John Capp.....	Capp, Denton & Bond..	" " " " " "	24, 1900	46	1
R. E. Timlin.....	Arkansas Mining Co.....	" " " " " "	27, 1900	35	1
C. Hedrick.....	Perry Lease Mine No. 2..	" " " " " "	May 2, 1900	35	1
J. D. Sandridge....	Colonial L. & Z. M. Co..	" " " " " "	16, 1900	22	1
W. Wilkie.....	Colonial L. & Z. M. Co..	" " " " " "	21, 1900	23	1
W. Livengood.....	Joplin-Galena C. L. & Z. Co.	" " " " " "	21, 1900	28	1
J. M. Shipley.....	Center Creek Mng. Prop.	" " " " " "	Jan. 11, 1900	40	1
Frank Robinson....	Big Six Development Co..	Operator.....	19, 1900	30	1
Chas. Shumate.....	Bay State Zinc Co.....	Miner.....	25, 1900	25	1
Frank Smarr.....	Big Circle Mining Co.....	" " " " " "	22, 1900	29	1
John Carden.....	" " " " " "	" " " " " "	22, 1900	28	1
John P. O'Brien....	Investors' Mining Co.....	" " " " " "	25, 1900	22	1
Totals.....					

Mines for the year ending June 30, 1900.

COUNTY.

Insured.	Nature of accident.	Coroner's verdict.
Amount.		
1	Tamping dynamite	
1	"	
2		

COUNTY.

1	Fall of roof	Purely accidental.
1	Asphyxiated	No inquest.
1	Fall of rock	Unavoidable accident.
1	Fall of roof	Unavoidable accident.
1	"	Unavoidable accident.
1	"	"
1	\$1,000	Unavoidable accident.
1	2,500	Death resulted from fall of tub.
1	Fall of tub in shaft	Unavoidable accident.
1	Fall of material back into shaft	
1	Fall from tub in being hoisted out; over-	
1	come by bad air	No inquest.
1	Explosion of dynamite	By an explosion of stick powder.
1	7,000	" " "
1	"	" " "
1	1,000	" " "
1	"	" " "
1	Tamping dynamite with metal bar	
1	Fall of roof	Unavoidable accident.
1	Foul air	Inquest not necessary.
1	Fall of tub back into shaft	Inquest not necessary.
1	"	Inquest not necessary.
1	Caught between cars on surface	Death due to carelessness of em-
1	"	ployes K. O. P. & G. R. R.
1	Fall to bottom of shaft, 170 feet	Accident due hoisterman's fright
1	Fall of material in shaft	
1	Fall of rock	
1	"	
1	"	
1	Fall of roof	No inquest.
1	Climbing out of shaft on cribbing	No inquest.
1	Fall of roof	
1	Asphyxiated; foul air	No inquest.
1	"	No inquest.
1	Tamping shot with metal bar	Caused by his own hand in tamp-
1	"	ing with metal bar.
1	Due to above premature shot	
1	"	
1	"	
1	Fall of roof	
1	Foul air or steam	Was killed by gas or steam.
1	2,000	Was killed by gas or steam.
1	} Stepped into tub and went to bottom be-	
1	fore hoisterman could check the tub	
1	Fall of roof	Accidental.
1	Fall of tub in shaft	No inquest.
1	Fall of rock out of tub	Death by his own carelessness.
1	Fall of roof	No inquest.
1	"	Unavoidable accident.
1	5,000	
1	5,000	
1	2,000	
1	} Drilled into an old shot that failed to ex-	
1	pode some days previous	
1	Went back too soon on shot	Accidentally killed by going back
1	"	on shot.
1	"	Accidental.
1	Break of a sling used in hoisting pump	Accidental.
1	Tamping with metal bar	Tamping with metal bar.
1	"	Tamping with metal bar.
1	Fall of roof	Unavoidable.
1	\$25,500	

ACCIDENTS AT LEAD AND

LAWRENCE

Name of injured person.	With whom employed.	Occupation of injured person.	Date of acc't.		Age.....	Single.....
			Month.....	Year.....		
W. E. Morton.....	Reynolds, Scott Bros. & Co.	Miner.....	July 23	1899	36	....
J. O. Porter.....	" " "	" " " " " "	" 23	1899	36	....
J. L. Musgrove.....	" " "	" " " " " "	" 23	1899	30	....
Geo. Messick.....	Spring River Mining Co....	" " " " " "	" 24	1899	24	1
John Doreibielus.....	" " " " " "	" " " " " "	" 24	1899	35	....
Robt. Grimmelt.....	" " " " " "	" " " " " "	" 24	1899	24	....
Fred. Mansfield.....	" " " " " "	" " " " " "	" 24	1899	23	1
Edw. Messick.....	" " " " " "	" " " " " "	" 24	1899	23	1
Isaac Powell.....	Bowers Mill Mine No. 1....	" " " " " "	Mch. 19	1900	45	....
Frank Wilson.....	" " " " " "	" " " " " "	" 19	1900	35	....
B. M. Rhodes.....	" " " " " "	" " " " " "	" 19	1900	40	....
E. W. Keesee.....	Henry Brumback.....	" " " " " "	Apr. 28	1900	24	1
F. M. Hadley.....	" " " " " "	Foreman.....	" 28	1900	24	....
Henry Earnest.....	" " " " " "	Miner.....	" 28	1900	45	....
						4

NEWTON

Henry Moone.....	Bald Knob Mining Co.....	Miner.....	July 24	1899	30	....
Frank Harris.....	Troutman & Co.....	" " " " " "	" 28	1899	30	....
Edward Cowardin.....	Columbus Mining Co.....	" " " " " "	Aug. 1	1899	32	....
Robt. Leper.....	Gobbler Mine.....	" " " " " "	Nov. 16	1899	22	1
C. L. Cox.....	Eddington Mining Co.....	" " " " " "	Jan. 11	1900	45	....
Newton Larkins.....	Fox River Lead & Zinc Co.	Engineer.....	May 10	1900	35
						1

ST. FRANCOIS

Jack Powell.....	St. Joseph Lead Co.....	Miner.....	Apr. 6	1900	18	1
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INC MINES—Continued.

DUNTY.

No. of children.	Non-fatal.	Fatal.	Insured.			Nature of accident.	Coroners verdict.
			Yes.	No.	Amount.		
1	1	1	1	1	\$1,000	Premature explos'n, metal bar	No inquest.
1	1	1	1	1		" " "	" " "
1	1	1	1	1	½ yrs. wages.	" " "	" " "
1	1	1	1	1	\$465	" " "	No inquest.
1	1	1	1	1	465	" " "	" " "
1	1	1	1	1	465	" " "	" " "
1	1	1	1	1	accident.	" " "	" " "
1	1	1	1	1		" " "	" " "
1	1	1	1	1		" " "	" " "
1	1	1	1	1		" " "	No inquest.
1	1	1	1	1	465	Fall of rock.	" " "
1	1	1	1	1	half wages.	" " "	" " "
1	1	1	1	1	half wages.	" " "	" " "
0	15	6	8	9	\$2,860		

DUNTY.

3	1	1	1	1		Cut fuse too short, blast caught him.	
3	1	1	1	1		Fall of roof.	Unavoidable accident.
1	1	1	1	1		Fall of rock.	
7	1	1	1	1	\$2,500	Fall of material down shaft.	No inquest.
2	1	1	1	1		Explosion of powder while loading cartridge, hot grease fell on caps.	No inquest.
2	1	1	1	1		Caught in the machinery.	
16	2	4	1	5	\$2,500		

DUNTY.

1	1	1	1	1		Fall of roof.	Unavoidable accident.
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CAUSE OF ACCIDENT AND NUMBER INJURED FROM EACH CAUSE.

TABLE NO. VIII—Accidents.

Nature of accident.	Fatal.	Non fatal.	Total.
Fall of roff.....	13	10	23
Fall of tub in shaft.....	5	.....	5
Fall of material in shaft.....	4	.....	4
Falling down shaft.....	1	.....	1
Drilling into an old shot.....	.....	2	2
Returning to soon on shot.....	5	1	6
Tamping dynamite with metal bar.....	10	11	21
Careless handling of dynamite.....	5	.....	5
Asphixiated.	2	.....	2
Cave in.....	.....	3	3
Hot grease dropped into box caps.....	1	.....	1
Careless holsting out of shaft.....	2	.....	2
Escaping steam.....	2	.....	2
Caught in machinery.....	2	.....	2
Total.....	52	27	79

MINING DIRECTORY OF THE LEAD AND ZIN

BARR

Name of owner, lessee or operating company.	Postoffice address.	No. of acres owned or leased.
Henderson Mines.....	Purdy.....	Owned 3.....
Marlott & Berry.....	Purdy.....	Own 40.....
Pioneer Mining and Milling Co.....	Pioneer.....	Own 40.....

BENTON

Union Mining Co.....	Sedalia.....	Leased 20.....
Inspector was in some 8 shafts at.....	Zinc.....	.....

CHRISTIAN

Ozark Mining Co.....	Ozark.....	Lease 120.....
New Era Mining Co.....	St. Louis.....	Lease 180.....

COLE

King Cole Lead and Zinc Co.....	Jefferson City.....	Lease 59.....
Wagner Mines.....	" "	Own 160.....
Jefferson City Mining and Realty Co..	" "	Lease 180.....
Wyaconda Lead and Zinc Mining Co...	" "	Lease 200.....

DADE

Uncle Tom Mining Co.....	Corry.....	Lease 136.....
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FRANKLIN

Northumberland Mining Co.....	St. Clair.....	Own 90.....
The Sango Mining Co.....	Moselle.....	Own 80.....
Yellow Dog Lead Mining Co.....	St. Louis.....	200.....

GREENE

Loy & Preston.....	Ash Grove.....	Own 80.....
Murray & Rainey.....	Ash Grove.....	Lease 4.....

HOWELL

G. & G. Mining Co.....	West Plains.....	Own 120.....
South Missouri Mining and Milling Co..	Cureall.....	Own 120.....

PRODUCING COUNTIES OF MISSOURI.

Location of the mining land owned or leased.	Name of sub-lessees or company sub-leasing the land.	No. of shafts.
4 and 35, Tp. 25, R. 27.....	A. J. Henderson.....	3
E. ¼, Sec. 34, Tp. 25, R. 27.....	Buley & Perry Short, 3; Stephen & Cullop, 1; P. W. Ruff, 1; Elsey Bros., 1.....	6
uth of Pioneer.....	H. B. Ellis and John B. Kennedy.....	3
W. ¼ of N. W. ¼, Sec. 28, Tp. 42, 42, range 21.....	Union Mining Co., W. B. Martin, manager.. Failed to receive a report from operators— possibly their prospect work was not ad- vanced sufficiently.....	1 8
uth of Ozark.....	A. Cleaver, 2; J. J. Horton, 1; J. Eutsler, 1; Bond Bros., 1.....	5
.....	Not operated for some months.....	2
S. W. ¼, Sec. 22, Tp. 42, R. 13....	Shaw & Marsteller, lessees and operators....	3
Tp. 42, R. 13.....	W. W. Wagner.....	1
Tp. 42, R. 13.....	Blue Jack Mining Co.....	1
, Tp. 42, R. 13.....	Wyaconda Lead and Zinc Mining Co.....	2
le south of Dadeville.....	John A. Hall.....	1
east of St. Clair, S. 5, 32-41, 42, R. 1 E.	Northumberland Mining Co.....	3
41, R. 1 east.....	The Sango Mining Co.....	2
1, 28 and 29, Tp. 41, R. 1 E.....	Yellow Dog Lead Mining Co.....	2
south of Ash Grove.....	E. R. Gouty and others—prospecting.....	7
N. W. ¼ of Sec. 32, Tp. 30, R. 24.....	Murray & Rainey.....	1
t of West Plains.....	G. & G. Mining Co. (work done in open cuts).	2
est of West Plains.....	South Missouri Mining and Milling Co.....	3

COUNTY.

Location of the mining land owned or leased.	Name of sub-lessees or company sub-leasing the land.	No. of shafts.
Central City, Lone Lady Lease.....	Britton Mining Co.	2
" " " "	Pickett Mng. Co., 2; Thanksgiving Mng. Co., 1	3
" " Porter Land.....	Baldridge Mining Co., 1; Texas Mining Co., 2	3
" " " "	Kentucky Mining Co., 1; Deny Mining Co., 1	3
" " Interurban Lease.....	Tennessee Mng. Co., 1; Kickseeker Mng. Co., 1	3
American Center Valley.....	Yellow Rose Mng. Co., 3; Brook Mng. Co., 1	4
" " " "	Rickseeker Mng. Co., 1; Kicking Jo. Mng. Co., 2	3
" " " "	Shonnett M. Co., 2; Hawkeye, Oakland M. Co., 2	6
" " " "	Reber Mining Co., 2; Seven S. Mining Co., 3	5
" " " "	New Jersey Mng. Co., 4; Silver Moon Mng. Co., 3	7
" " " "	Mooking Bird M. Co., 2; Blue Bell M. Co., 1	3
" " " "	Silver Dollar Mng. Co., 1; Owens Mng. Co., 1	3
Central City, Missouri Central Lease.....	Johnson Mining Co., 1; Verona Mining Co., 1	2
" " " "	Cloverleaf Mining Co., 3; Union Mining Co., 3	6
" " " "	Cuban Mining Co., 3; July Mining Co., 1	4
" " " "	Red Light Mining Co., 1; Land Mining Co., 3	5
Prosperity, Davy Land.....	Eastern Star M. Co., 2; Mo. Blanket V. M. Co., 3	3
American Richland.....	Oscola Mng. Co., 2; Margarette Mng. Co., 2	4
American Cornfield.....	Big Hit mine, 2; Leon & Cass mine, 1	3
" " " "	Myrtle P. mine, 2; Bell C. mine, 2	4
" " " "	Cass & Moore mine, 2; Superdine mine, 2	4
" " " "	Buff Coachin mine, 3; Black Diamond mine, 1	4
" " " "	Fred Lee mine, 2; King Cotton mine, 1	4
" " " "	Dagheartly mine, 1; Greenwood mine, 1	2
American Midway Tract.....	Monadnock mine.....	3
" " " "	Dividend mine, 2; Twin Oaks mine, 1	2
" " " "	Long Bell mine, 1; Great Bend mine, 1	2
" " " "	Shode & Co. mine, 1; Geo. P. Kendrick mine, 1	2
Zincite.....	Grant Owen mine.....	1
" " " "	Eagle mine, 1; Owl mine, 1	2
" " " "	Henshaw mine, 1; Evening Star, mine, 1	2
" " " "	Newsboy mine, 1; Freeman mine, 1	2
" " " "	Vanfeat mine, 1.....	1
Prosperity.....		
West of Joplin.....	Badger M. Co., Blanchaset, Sullinger & Co., 5	5
2 Miles East Joplin.....	June Rose mines, 2; Key West mines, 1	3
S. E.-N. W. Sec. 33, Tp. 28, R. 33.....	Randall & Co. mines, 1; Mascott Mng. Co., 3	4
West of Joplin, Taylor Land.....		2
N. W.-S. W. Sec. 6, Tp. 27, R. 32.....	Plymouth Rock, M. 4; J. R. Holmes M. 4	8
N. W.-N. E. Sec. 28, Tp. 28, R. 33.....	Grand Master M. Co., 1; J. Schreiner, 1	2
One mile south Carterville.....	Opal Wonder, M. Co., 2; Richmond M. Co., 1	3
Sec. 27-28, Tp. 28, R. 33.....	Jordon & Co., 1.....	1
5/4 South of Reeds P. O.....	Three Bros., 1; Hunter & Yarchis, 1	2
College Hill addition to Joplin.....		1
N. W. of S. E. and N. E. of S. E., Sec. 4, Tp. 27, R. 33.....		1
Duenweg.....	B. & C. Mng. Co., 2; Audrain Mng. Co., 3	5
" " " "	Mildred Mng. Co., 1; Vestel Mng. Co., 1	2
" " " "	Newsboy Mng. Co., 2; Baptist Mng. Co., 1	3
" " " "	Dandy Mng. Co., 1; Sunflower Mng. Co., 2	3
" " " "	Easter Mng. Co., 1; West End Mng. Co., 1	2
" " " "	Boston Duenweg Mining Co., East End and West End, 6; White Rat Mining Co., 1	7
Prosperity.....	St. Louis-Laura S. Zinc Co., 1; Atlas M. Co., 1	2
" " " "	Batavia Mng. Co., 1; Euritt & Roberts, 1	2
" " " "	Chicago-Joplin Lead and Zinc Co., 1; A. B. Wilgus, 1	2
Tueahoe; Cobel land.....	B. C. Cayler, mill	
S. E. 1/4, S. 5, T. 34, R. 32; Schleffendecker tract.....	Mining and Engineering Co., 1; Budweiser Mining Co., 1	2
S. W. of N. W. Sec. 2, Tp. 27, R. 34.....		3
Sec. 17, 18, T. 28, R. 32.....	Sumner & Hardwick, 1; Hodson & Co., 1	2
" " " "	Big Hickory, 1; Sunny Slope, 1	2
" " " "	Junior Mining Co.....	1
" " " "	W. W. Young, 2; Enreka Mining Co., 4	6
" " " "	D. C. McConey, 5; W. E. Magruder, 1	6
" " " "	W. F. Lytle & Co., 3; Nancy I. Beasley, 3	6
" " " "	E. S. Hart and A. B. Wilgers, 2; Allen, Harvey & Murray, 2	4
" " " "	Zula G. Mining Co., 4; R. C. Karr, 1	5
" " " "	Stevens & Fishburn, 1; Artar & Merrion, 1	2
" " " "	James O'Neill, 1; Hatten & Co., 5	6
" " " "	McGehee & Davis, 1; Clara T. Mng. Co., 6	2
" " " "	Wheel of Fortune M. Co., 3; Ball & Hatten, 2	2
" " " "	O. W. Jocelyn, 1; Whins Lead and Zinc Co., 2	2
" " " "	Witte Meyer & Co., 3; W. H. Smith & Co., 2	2
" " " "	W. G. Davission, 1; O. A. Parker & Bro., 4	2

PRODUCING COUNTIES OF MISSOURI--Continued.

COUNTY--Continued.

Location of the mining land owned or leased.	Name of sub-lessees or company sub-leasing the land.	No. of shafts.
.....	New Jersey & Mo. Z. Co., 4; Isaac Perkins, 1	5
.....	Thomas Brown, 1; C. E. Matthews, 1.....	2
.....	Harland & Short, 1; A. B. Smith & Co., 2.....	3
.....	Fisher & Morgan, 1; J. A. Harland, 1.....	3
.....	Edward James, 1; Hoo Hoo Mining Co., 2.....	3
.....	Firth & Smith, 1; Coyne & Gale, 4.....	5
.....	W. H. Boydston, 2; J. N. Eakens, 1.....	3
.....	O. H. Schoerherr, 1; Williams. Whitney, Hall & Co., 2.....	3
Sec. 7, Tp. 28, R. 33, northeast Carl June..	D. Henson & Co., 1; Gore & Co., 2.....	3
.....	C. E. Miller & Co., 1; Victor Mining Co., 2.....	3
.....	Hull & Co., 1; Dunham & Co., 2.....	3
.....	Murray & Co., 1; Willgus & Co., 1.....	2
.....	G. W. Layne & Co., 1; Robertson, Chitwood & Co., 2.....	3
.....	Crays & Co., 1; Childs & Jacobs, 2.....	3
.....	Elliott & Co., 1; J. B. Howell & Co., 1.....	2
.....	Cox & Co., 1; Jubilee Mining Co., 2.....	3
.....	Lee & Co., 1; H. W. Gerke & Co., 1.....	2
.....	D. G. Evans & Co., 1; Hazell Mining Co., 1.....	2
.....	Kate Thorn.....	2
Zincite.....	Tensing & Co., 2.....	2
.....	Sullivan & Co., 1; Chew & Co., 1.....	2
N. E. ¼ S. W. ¼ Sec. 6, Tp. 27, R. 32.....	Jeanette Mining Co., 1; Finke & Co., 1.....	2
Near Joplin.....	Thomas & Finke, 1; Blackburn & Co., 2.....	3
Tucahoe.....	S. T. Nesbit & Co., 2; M. Engelbert & Co., 2.....	4
.....	Jno. Langston & Co., 1; J. R. Long & Co., 1.....	2
.....	A Schaffer & Co., 1.....	1
Near Belleville.....	.....	1
Parts Sec. 3-4-9 and 10, Tp. 27, R. 33.....	Glendale Mng. Co., 2; Cloverleaf Mng. Co., 1.....	3
.....	Capt. W. C. Renfrow, 3; Sheldon Mng. Co., 2.....	5
.....	Jack Harvard M. Co., 2; H. A. Foster, 1.....	3
.....	Plasa Mng. Co., 2; McGuire & Co., 1.....	4
.....	Detroit Mng. Co., 2; Big Six Mng. Co., 2.....	4
.....	Tomahawk Mng. Co., 1; Pearl Lead Zinc Co., 1.....	2
.....	Vandalla Mng. Co., 1; Mary D. Mng. Co., 1.....	2
.....	Ground Irwin, & Co., 1; Hughs, Miller & Co., 1.....	2
.....	Dead Mule Mng. Co., 2; Lawrence-Joplin Lead & Zinc Co., 2.....	4
.....	Kohinoor Zinc Co., 4; Golar & Co., 1.....	5
.....	W. H. Lyon, (Malloy) 1; Fourteen M. Co., 2.....	3
.....	Bristol-Joplin Lead & Zinc Co., 1; Live Mule Mining Co., 1.....	2
.....	Young & Co., 1; Crane & Co., 1.....	2
.....	Hennessey Lynch & Co., 1; Manning & Co., 1.....	2
Duenweg.....	Little Joe M. Co., 1; Granny Welch M. Co., 1.....	2
.....	Coon Skin Mng. Co., 1; Queen B Mng. Co., 1.....	2
.....	Blue Ribbon Mng. Co., 1; Prospect Mng. Co., 1.....	2
.....	Crown Point Mng. Co., 2; Hobo Mng. Co., 1.....	3
In city of Cartersville.....	Cordell Zinc and Lead Co., 3; Kaw Mng. Co., 1.....	4
.....	Stamp & Co., 3; Zenith Mining Co., 1.....	4
.....	Iowa Mng. Co., 1; Little Jennie Mng. Co., 1.....	2
.....	Barrett & Co., mill; Matthews & Co., 1.....	1
.....	Davey No. 6, 1; Hannum & Co., 1.....	2
.....	Moss & Co., 1; Hathcock & Co., 1.....	2
.....	C. C. C. Co., 1; Greely & Co., 1.....	2
.....	White Swan Co., 1; Whitley & Co., 1.....	2
.....	Messmore & Co., 1; Flynn & Co., 1.....	2
.....	Garred & Co.....	1
2¼ miles N. W. of Joplin postoffice.....	Post-Dispatch M. Co., 1; Cecil H. Mng. Co., 1.....	2
Webb City.....	J. D. Hurd.....	1
East Hollow.....	O. A. Foster, 1; Zincite Co., 2.....	3
.....	Beardstown, 1; Gun Mining Co., 1.....	2
.....	Huckleberry, 1; Radey & Co., 1.....	2
.....	Somerset.....	1
Cartersville.....	Muncie Mining Co., 2; The Gougar Lead and Zinc Mining Co., 2.....	4
.....	Mary S. Mng. Co., 2; Charter Oak Mng. Co., 2.....	4
.....	Flint L. and Z. Co., 2; Mayflower Mng. Co., 3.....	5
.....	A. & G. Mining Co.....	1
½ mile south Webb City.....	Usona Mining Co., 1; Tulan L. and Z. Co., 2.....	3
.....	Sure Shot Mining Co., 1; Relay Mining Co., 1.....	2
Prosperity.....	Jas. Gladden, 3; B. C. Aylor, 3.....	6
.....	Raymond & Co., 3; Blue Grass Mining Co., 1.....	4
.....	J. C. Miller & Co., 2; G. Allen & Co., 1.....	3
.....	Grasshopper Mining Co.....	1

PRODUCING COUNTIES OF MISSOURI—Continued.

COUNTY—Continued.

Location of the mining land owned or leased.	Name of sub-lessees or company sub-leasing the land.	No. of shares.
Sections 15 and 16, Tp. 27, R. 33.....	W. R. Caulkins, 2; Hadly & Crowley, 2.....	4
.....	Noble & Co., 1; Hellman & Co., 1.....	1
.....	20th Century, 1; Hard Telling, 1.....	1
.....	Hayes & McGuire, 1; John R. Holmes, 1.....	1
.....	F. G. Writer, 1; Statib & Co., 1.....	1
.....	Campbell & Sheldon, 1; Graham & Co., 1.....	1
.....	Nevins, 1; A. Ferriek, 1.....	1
Sec. 1, Tp. 27, R. 34.....	G. W. Judd.....	1
.....	Commonwealth Zinc Co., 3; Sunny Slope Mining Co., 3.....	6
Sec. 2, Tp. 28, R. 34.....	Freeman Land and Mining Co.....	1
Zineite, Sec. 25, Tp. 28, R. 34.....	Funk & Bowman.....	1
Webb City.....	S. F. Clark.....	1
N. W. ¼, N. W. ¼, Sec. 17, Tp. 28, R. 32.....	Hollingsworth & Co.....	1
Reeds Station, Sec. 35, Tp. 28, R. 30.....	Boston Little Circle Mng. Co., 12; Bunker Hill Mining Co., 7.....	19
Sec. 31, Tp. 29, R. 32, and Sec. 36, Tp. 29, R. 33.....	Am. Z. L. & S. Co. (Gaddis); LaTosca M. Co., 2.....	3
.....	Nugget Mng. Co., 1; Texas Star Mng. Co., 5.....	6
.....	R. Estrada, 1; Bay State Mining Co., 3.....	4
.....	Henry Bothfeld, 2; J. W. Kelley, 1.....	3
.....	J. W. Kirkbride & Co., 3; Chicago Z. M. Co., 1.....	4
.....	Mayne Bros., 1; G. W. Belk, 1.....	2
.....	H. S. Bullard, L. Plimpton, E. Cady, 1.....	3
.....	Leadville Hollow Zinc Mining Co., 2.....	3
.....	Delta Mng. Co., 1; Corn Palace Mng. Co., 2.....	3
.....	Locust Co., 6; J. M. Sully, 1.....	7
.....	Carll & Co., 1; R. A. Starr & Co., 1.....	2
.....	Becker Mng. Co., 1; Blakey No. 2 Co., 1.....	2
.....	Raspberry Co., 1; Cliff Mining Co., 1.....	2
.....	J. M. Mason, 2; Kirkbride & Co. No. 2, 2.....	4
.....	Ewing & Co., 1; Bell & Co., 1.....	2
.....	Maus & Co., 1; Davis Mining Co., 2.....	3
Sec. 13, Tp. 27, R. 33.....	G. W. Armstrong, 6; J. W. Hamilton, 4.....	10
.....	F. L. Harr, 2; F. L. Harrington, 2.....	4
.....	Ed. Bliwyer.....	1
Sec. 36, Tp. 28, R. 34.....	Hagadorn & Rose, Hagadorn R.....	3
North Hts., Add. to Joplin.....	Harrison, J. O.....	1
Sec. 13, Tp. 28, R. 34.....	J. Babboo, 1; Miller & Co., 1.....	2
.....	State Bank, 1; Dunham & Co., 1.....	2
.....	Carl Junction Syndicate, 1; Burton & Co., 1.....	2
.....	Gerkey & Co., 1; Barbee & Co., 1.....	2
Cartersville, Sec. 17 and 20, Tp. 28, R. 32.....	Sharpsburg Mining Co.....	1
Sec. 2, Tp. 27, R. 34.....	Hanover L. & Z. Co., 2; Hulseng & Norton, 3.....	5
.....	Commonw. Z. Co., 1; Geo. Washington Co., 2.....	3
.....	Hardwick & Summer.....	2
Sec. 36, Tp. 28, R. 36.....	Itasca Lead and Zinc Co., 1; Superior, 1.....	2
.....	Indep'ce Mng. Co., 1; Burley & Freeman, 1.....	2
Sec. 15, Tp. 27, R. 33.....	J. R. Brown, 1; Jack Horner Mng. Co., 1.....	2
Sec. 31, Tp. 28, R. 32.....	Free Coinage.....	3
Cartersville.....	Blue Wing.....	6
Webb City.....	Investors' Mining Co.....	1
Near Carl Junction.....	Katy Mining Co., 2; Shackelford & Co., 1.....	3
Sec. 32, Tp. 28, R. 33.....	Jack Johnson M. Co., 1; John Johnson M. Co., 1.....	2
3 miles west of Joplin.....	Jackson Jr., M. Co.....	1
1½ miles northwest of Joplin.....	I Know Mine.....	1
.....	Big Eight Mine.....	1
.....	Phillips & Co.....	1
.....	Damifino & Ohio.....	2
N. E. ¼, N. E. ¼, Sec. 17, Tp. 28, R. 32.....	Argo Mining Co.....	1
.....	Ed. E. Hoffman & Co., sinking.....	1
.....	Stevenson & Co., sinking.....	1
.....	Geo. B. Hornish & Co., sinking.....	1
.....	J. B. Moore & Co., sinking.....	1
.....	Lulu M. Gilbert & Co., sinking.....	1
.....	Geo. M. Taylor & Co., sinking.....	2
.....	M. Leon & Co., sinking.....	1
S. E. ¼, N. E. ¼, Sec. 2, Tp. 27, R. 33.....	Regent Mining Co.....	2
.....	Stinnett & Co.....	1
.....	Jones & Co.....	1
.....	Tenegar & Co.....	1
.....	Lawton & Co.....	2
.....	Roof & Co.....	1
.....	Clayton & Co.....	1
.....	Bannister & Co.....	1
.....	Mayo & Co.....	1
.....	Wetherell & Co.....	1
.....	Cadwalter & Co.....	1

MINING DIRECTORY OF THE LEAD AND ZINC ORE

JASPER

Name of owner, lessee or operating company.	Postoffice address.	No. of acres owned or leased.
Kirkbridge Mining Co.....	Joplin.....	Lease 90.....
Kimberly Mining Co.....	Carthage.....	Leased 4.....
Kansas City Milling and Mining Co....	Joplin.....	Leased 45.....
Lead Hill Mining Co.....	Carthage.....	Leased 40.....
Lead Hill Mining Co.....	Joplin.....	Leased 40.....
Lee Moore.....	".....	Leased 80.....
Leota Mining Co.....	Carthage.....	Leased 5.....
Lewis, J. F.....	Webb City.....	Leased 2.....
Lincoln Mining Co.....	Joplin.....	Own 20.....
Lucky Tom Mining Co.....	Carthage.....	Leased 6.....
McConnell Mining Co.....	Joplin.....	Leased 4.....
McCullough-Brownlee Mining Co.....	Webb City.....	Leased 80.....
McKinley Mining Co.....	Trenton, N. J., and Joplin.....	Own 60.....
Manhattan Mining Co.....	Webb City.....	Own 40.....
Massasoit Lead and Zinc Co.....	Joplin.....	95.....
Massachusetts Lead and Zinc Co.	Carthage.....	Own 40.....
Mignonette Mine.....	".....	Leased 4.....
Mistletoe Mining Co.....	Neck City.....	Own 40.....
Missouri Lead and Zinc Co.....	Joplin.....	Own 1,200.....
Missouri Zinc Fields Co.....	Webb City.....	Own 440.....

PRODUCING COUNTIES OF MISSOURI—Continued.

COUNTY—Continued.

Location of the mining land owned or leased.	Name of sub-lessees or company sub-leasing the land.	No. of shafts.
S. E. $\frac{1}{4}$, N. E. $\frac{1}{4}$, Sec. 2, Tp. 27, R. 33.....	Black & Co..... Porter & Smith..... January Mining Co..... Bassett & Co..... Hunt Rustle & Co..... Salden & Co..... McCubbin & Co..... Snickless & Co..... Gann & Co.....	2 2 1 2 1 2 3 1 1
N. W. of N. W. $\frac{1}{4}$, Sec. 35, Tp. 28, R. 31.....	Kimberly Mining Co..... Imperial Mining Co..... Central Mining Co.....	1 1 1
N. E., S. W. $\frac{1}{4}$, Sec. 11, Tp. 27, R. 32.....	Venango Co..... Triumph Co..... D. H. Paulding & Co..... Monyhan & Gooch..... Bulen & Co.....	1 1 1 2 2
N. E., N. E., $\frac{1}{4}$, Sec. 25, Tp. 28, R. 34, near Belleville.....	Lead Hill Mining Co.....	4
One mile south of Joplin.....	New Horseshoe Mining Co.....	2
$1\frac{1}{4}$ miles southwest Reeds Station.....	Leota Mining Co.....	1
Lewis Station.....	J. F. Lewis.....	1
S. E., N. W. $\frac{1}{4}$, Sec. 31, Tp. 23, R. 33.....	Blackhawk Min.....	2
Half way between Duenweg and Prosperity.....	Feely, Cordell, Hobbs & Good.....	1
S. E. cor., N. W., N. W. $\frac{1}{4}$, Sec. 14, Tp. 27, R. 33.....	McConnell Mining Co.....	1
$\frac{1}{4}$ mile north of Webb City.....	McCullough, Brownlee & Co.....	2
South of Carterville on Conner land.....	Casmire, Stump & Woodward..... Setser & Burris..... Geo. Mosely.....	1 1 1
S. E. of S. W. $\frac{1}{4}$, Sec. 20, Tp. 23, R. 32.....	Earl, Bolen & Clark..... Goodenough Mining Co.....	1 1
N. E. of N. W. $\frac{1}{4}$, Sec. 14, Tp. 27, R. 33.....	Deli, C. Mining Co..... Sullivan & Young..... Watson & Mahaffy..... Geo. E. Starr.....	1 2 3 1
4 $\frac{1}{4}$ miles N. W. of Carthage.....	Chas. E. Eads.....	1
6 miles N. W. of Carthage.....	Claud Calvin.....	1
Neck City.....	Chas. M. Clinton..... J. A. Goodrich..... John O'Keefe.....	1 1 1
	Massachusetts Lead and Zinc Co.....	1
	Waddell & Co.....	1
	Big Kate Mining Co.....	1
	McMillan, Lawrence, Henry & Lane.....	1
	Blake & Sutherland.....	2
	F. M. Walton and Anna Walton.....	3
	White, Warm, Bryant & Co.....	4
E. $\frac{1}{4}$ W. $\frac{1}{4}$ and S. E. $\frac{1}{4}$ and W. $\frac{1}{4}$	Boss, Butler, Chase, Dagley, McGavaran, Collins, Tidball, Lyons, Tomlinson, Davis, Jones, Fenner, Baker, Mattes, Thornton, Chew, Chapman, Brown, Norseworthy, Lawyer, Toledo, M. & M. Co., Tarbell, Francis, Davis, Foster, Vincent, Casey, Deardorff, Walcott, Jones, Harvey, Bradbury, Hicks, Armstrong, Brown, Adams, Sibley, Hock, Walker, Tomlinson, Power, Harrington, King, Kendwig, Duffelmeyer, Paxton, McGee, Johannes, Anderson, Harvey, Hansford, Felton, Davis, Harrison, Hanekett, Longworthy, Mears, Johann, Gross, Poole, Crampton, Reinmiller, Moss, Gross, Meeker, Buchanan, Roberts, Belamy, Miller, Osborn, Barnett, Wood, McCullough, Douglas, Eaton, Felton, Long, Coyle, Livingston, Hulse, Homedy, Frey, Hale, Malone, Torr, Coyle, Langon, Patterson, Burley, Molley, Young, Armour, Peters, Goodrich, Morgan, Douge.....	97
Webb City and Carterville.....	Detroit Mo. Zinc Co..... Calting & Hunter..... Hunter & Co..... Bell & Co..... Old Colony Zinc & Smelting Co..... American Zinc Lead & Smelting Co..... The Duluth Zinc Co..... Bey Zinc Co..... J. M. Staight.....	1 1 1 1 1 1 1 1

MINING DIRECTORY OF THE LEAD AND ZINC ORE

JASPER

Name of owner, lessee or operating company.	Postoffice address.	No. of acres owned or leased.
Missouri Zinc Fields Co.....	Webb City.....	Own 440.....
Mohawk Mining Co.....	Joplin.....	Own 11, leased 40.....
Mohaska Zinc Co.....		Own 160.....
Moonshine Mining Co.....	Joplin.....	56.....
Mt. Arrarat Mining Co.....	Prosperity.....	Leased 10.....
Narragansett Lead and Zinc Mining Co.	Joplin.....	Leased 40.....
North Heights Addition.....		Own 150 town lots....
Ohio Mining Co.....	Scotland.....	Leased 40.....
Old Colony Zinc and Smelting Co.....	Joplin.....	Own 237.....
Oro Mines.....	Webb City.....	Leased 40.....
Pearl C. Mining Co.....		8.....
Pearl Mining Co.....	Owensboro, Ky., and Joplin.	Own 40.....
Perry Leases, J. M. Sully, Manager....	Joplin, box 912.....	Own 190.....
Pleasant Valley Mining Co.....	Carthage.....	40.....
Porto Rico Mining Co.....	Prosperity.....	Leased 40.....

ORE PRODUCING COUNTIES OF MISSOURI.

COUNTY.

Location of the mining land owned or leased.	Name of sub-lessees or company sub-leasing the land.	No. of shafts.
Sections 34 and 35, Tp. 25, R. 27.....	A. J. Henderson.....	3
S. E. $\frac{1}{4}$, S. E. $\frac{1}{4}$, Sec. 34, Tp. 25, R. 27.....	Buley & Perry Short, 3; Stephen & Cullop, 1; F. W. Ruft, 1; Elsey Bros., 1.....	6
$\frac{1}{4}$ mile south of Pioneer.....	H. B. Ellis and John B. Kennedy.....	3

COUNTY.

W. $\frac{1}{4}$, S. W. $\frac{1}{4}$ of N. W. $\frac{1}{4}$, Sec. 28, Tp. 42, R. 21.....	Union Mining Co., W. B. Martin, manager..	1
Township 42, range 21.....	Failed to receive a report from operators—possibly their prospect work was not advanced sufficiently.....	8

COUNTY.

2 miles south of Ozark.....	A. Cleaver, 2; J. J. Horton, 1; J. Eutsler, 1; Bond Bros., 1.....	5
.....	Not operated for some months.....	2

COUNTY.

S. E. $\frac{1}{4}$ of S. W. $\frac{1}{4}$, Sec. 22, Tp. 42, R. 13....	Shaw & Marsteller, lessees and operators....	3
Section 1, Tp. 42, R. 13.....	W. W. Wagner.....	1
Section 1, Tp. 42, R. 13.....	Blue Jack Mining Co.....	1
Section 11, Tp. 42, R. 13.....	Wyaconda Lead and Zinc Mining Co.....	2

COUNTY.

$\frac{1}{4}$ of a mile south of Dadeville.....	John A. Hall.....	1
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COUNTY.

$\frac{3}{4}$ miles east of St. Olair, S. 5, 32-41, 42, R. 1 E.	Northumberland Mining Co.....	3
Sec. 2, Tp. 41, R. 1 east.....	The Sango Mining Co.....	2
Sections 21, 28 and 29, Tp. 41, R. 1 E.....	Yellow Dog Lead Mining Co.....	2

COUNTY.

$\frac{1}{4}$ miles south of Ash Grove.....	E. R. Gouty and others—prospecting.....	7
E. cor. N. W. $\frac{1}{4}$ of Sec. 32, Tp. 30, R. 24....	Murray & Rainey.....	1

COUNTY.

utwest of West Plains.....	G. & G. Mining Co. (work done in open cuts).	2
miles west of West Plains.....	South Missouri Mining and Milling Co.....	3

ANNUAL REPORT OF THE

MINING DIRECTORY OF THE LEAD AND ZIN

[illegible]

PRODUCING COUNTIES OF MISSOURI—Continued.

COUNTY—Continued.

Location of the mining land owned or leased.	Name of sub-lessees or company sub-leasing the land.	No. of shafts.
.....	New Jersey & Mo. Z. Co., 4; Isaac Perkins, 1	5
.....	Thomas Brown, 1; C. E. Matthews, 1.....	2
.....	Harland & Short, 1; A. B. Smith & Co., 2....	3
.....	Fisher & Morgat, 1; J. A. Harland, 1.....	3
.....	Edward James, 1; Hoo Hoo Mining Co., 2....	3
.....	Firth & Smith, 1; Coyne & Gule, 4.....	3
.....	W. H. Boydston, 2; J. N. Eakens, 1.....	3
.....	O. H. Schoerherr, 1; Williams, Whitney, Hall & Co., 2.....	3
7, Tp. 28, R. 33, northeast Carl June....	D. Henson & Co., 1; Gore & Co., 2.....	3
.....	C. E. Miller & Co., 1; Victor Mining Co., 2....	3
.....	Hull & Co., 1; Dunham & Co., 2.....	3
.....	Murray & Co., 1; Wilgus & Co., 1.....	2
.....	G. W. Layne & Co., 1; Robertson, Ohitwood & Co., 2.....	3
.....	Crays & Co., 1; Childs & Jacobs, 2.....	3
.....	Elliott & Co., 1; J. B. Howell & Co., 1.....	2
.....	Cox & Co., 1; Jubilee Mining Co., 2.....	3
.....	Lee & Co., 1; H. W. Gerke & Co., 1.....	2
.....	D. G. Evans & Co., 1; Hazell Mining Co., 1....	2
.....	Kate Thorn.....	2
.....	Tensing & Co., 2.....	2
.....	Sullivan & Co., 1; Chew & Co., 1.....	2
E. & S. W. 1/4 Sec. 6, Tp. 27, R. 32.....	Jeanette Mining Co., 1; Finke & Co., 1.....	2
at Joplin.....	Thomas & Finke, 1; Blackburn & Co., 1.....	3
ahoe.....	S. T. Nesbit & Co., 2; M. Engelbert & Co., 2..	4
.....	Jno. Langston & Co., 1; J. R. Long & Co., 1..	2
.....	A Schaffer & Co., 1.....	1
at Belleville.....	.....	1
ts Sec. 3-4-9 and 10, Tp. 27, R. 33.....	Glendale Mng. Co., 2; Cloverleaf Mng. Co., 1..	3
.....	Capt. W. O. Bentrow, 3; Sheldon Mng. Co., 2..	5
.....	Jack Harvard M. Co., 2; H. A. Foster, 1.....	3
.....	Plasa Mng. Co., 2; McGuire & Co., 1.....	4
.....	Detroit Mng. Co., 2; Big Six Mng. Co., 2.....	4
.....	Tomahawk Mng. Co., 1; Pearl Lead Zinc Co., 1..	2
.....	Vandalia Mng. Co., 1; Mary D. Mng. Co., 1.....	2
.....	Ground Irwin & Co., 1; Hughs, Miller & Co., 1.	2
.....	Dead Mule Mng. Co., 2; Lawrence-Joplin Lead & Zinc Co., 2.....	4
.....	Kohinoor Zinc Co., 4; Golar & Co., 1.....	5
.....	W. H. Lyon, (Malloy) 1; Fourteen M. Co., 2....	3
.....	Bristol-Joplin Lead & Zinc Co., 1; Live Mule Mining Co., 1.....	2
.....	Young & Co., 1; Crane & Co., 1.....	2
.....	Hennessey Lynch & Co., 1; Manning & Co., 1..	2
.....	Little Joe M. Co., 1; Granny Welch M. Co., 1..	2
.....	Coon Skin Mng. Co., 1; Queen B Mng. Co., 1....	2
.....	Blue Ribbon Mng. Co., 1; Prospect Mng. Co., 1..	3
.....	Crown Point Mng. Co., 2; Hobo Mng. Co., 1....	3
city of Cartersville.....	Cordell Zinc and Lead Co., 3; Kaw Mng. Co., 1..	4
.....	Stamp & Co., 3; Zenith Mining Co., 1.....	4
.....	Iowa Mng. Co., 1; Little Jennie Mng. Co., 1....	2
.....	Barrett & Co., mill; Matthews & Co., 1.....	1
.....	Davey No. 6, 1; Hannum & Co., 1.....	2
.....	Moss & Co., 1; Hathcock & Co., 1.....	2
.....	C. C. C. Co., 1; Greely & Co., 1.....	2
.....	White Swan Co., 1; Whitley & Co., 1.....	2
.....	Messmore & Co., 1; Flynn & Co., 1.....	2
.....	Garred & Co.....	1
miles N. W. of Joplin postoffice.....	Post-Dispatch M. Co., 1; Cecil H. Mng. Co., 1..	2
bb City.....	J. D. Hurd.....	1
st Hollow.....	O. A. Foster, 1; Zincite Co., 2.....	3
.....	Beardstown, 1; Gun Mining Co., 1.....	2
.....	Huckleberry, 1; Radey & Co., 1.....	2
.....	Somerset.....	1
tersville.....	Muncie Mining Co., 2; The Gougar Lead and Zinc Mining Co., 2.....	4
.....	Mary S. Mng. Co., 2; Charter Oak Mng. Co., 2..	4
.....	Flint L. and Z. Co., 2; Mayflower Mng. Co., 3..	5
.....	A. & G. Mining Co.....	1
mile south Webb City.....	Usona Mining Co., 1; Tulan L. and Z. Co., 2..	3
.....	Sure Shot Mining Co., 1; Relay Mining Co., 1..	2
.....	Jas. Gladden, 3; B. C. Aylor, 3.....	6
.....	Raymond & Co., 3; Blue Grass Mining Co., 1..	4
.....	J. O. Miller & Co., 2; G. Allen & Co., 1.....	3
.....	Grasshopper Mining Co.....	2

MINING DIRECTORY OF THE LEAD AND ZINC ORE

JASPER

Name of owner, lessee or operating company.	Postoffice address.	No. of acres owned or leased.
Empire Zinc Co.—Eagle Mines.....	Joplin.....	Own 200.....
" " " "	" " " "	" " " "
" " " "	" " " "	" " " "
" " " "	" " " "	" " " "
" " " "	" " " "	" " " "
" " Brookside Land.....	" " " "	Leased 40, own 300.....
Eureka Mining Co.....	Galeua, Kas.....	9.....
Freeman Land and Mining Co....	Joplin.....	80.....
Funk & Bowman.....	Webb City.....	2.....
Garden City Lead and Zinc Mining Co.	" ".....	40.....
Grounds, J. W.....	Carthage.....	Own 20.....
Granby Mining and Smelting Co.....	Oronogo.....	Own 400.....
" " " "	" " " "	" " " "
" " " "	Joplin.....	Own 240.....
" " " "	" " " "	" " " "
Haffner & Carll.....	Joplin.....	Leased. 60.....
Hagodorn, R.....	Zincite.....	Lease 20.....
Harrison, J. O.....	Fayetteville.....	Leased 2.....
Holden Bros. Mining Co.....	Joplin.....	" 40.....
" " " "	" " " "	" " " "
Homestead Zinc and Lead Co.....	Carterville.....	Own 80.....
Ihseng Mining Co.....	Carthage.....	" 24.....
Independence Lease.....	Joplin, 46 Collins Block.....	Own 106.....
Indiana Mining Co.....	Joplin.....	Leased 40.....
International Zinc Co.....	Joplin.....	Own 110.....
Investors Mining Co.....	" ".....	" 25.....
Ishpeming Mining Co.....	Webb City, box 855.....	Leased 40.....
John Jackson Mining Co.....	Carl Junction.....	Own 400.....
Jackson Junior Zinc Co.....	Joplin.....	Leased 91.....
Joplin Prospecting Co.....	" ".....	" 20.....
" " " "	" ".....	" 40.....
Kane Mining Co.....	Carterville.....	Lease 40.....
" " " "	" " " "	" " " "
Kirkbride Mining Co.....	Joplin.....	Lease 90.....

PRODUCING COUNTIES OF MISSOURI—Continued.

COUNTY—Continued.

Location of the mining land owned or leased.	Name of sub-lessees or company sub-leasing the land.	No. of shafts.
Sections 15 and 16, Tp. 27, R. 33.....	W. R. Caulkins, 2; Hadly & Crowley, 2.....	4
.....	Noble & Co., 1; Hellman & Co., 1.....	2
.....	20th Century, 1; Hard Telling, 1.....	2
.....	Hayes & McGuire, 1; John R. Holmes, 1.....	2
.....	F. G. Writter, 1; Statib & Co., 1.....	2
.....	Campbell & Sheldon, 1; Graham & Co., 1.....	2
.....	Nevins, 1; A. Ferrick, 1.....	2
Sec. 1, Tp. 27, R. 34.....	G. W. Judd.....	1
.....	Commonwealth Zinc Co., 3; Sunny Slope Mining Co., 3.....	6
Sec. 2, Tp. 28, R. 34.....	Freeman Land and Mining Co.....	1
Zincite, Sec. 25, Tp. 28, R. 34.....	Funk & Bowman.....	1
Webb City.....	S. F. Clark.....	2
N. W. ¼, N. W. ¼, Sec. 17, Tp. 28, R. 32.....	Hollingsworth & Co.....	1
Reeds Station, Sec. 35, Tp. 28, R. 30.....	Boston Little Circle Mng. Co., 12; Bunker Hill Mining Co., 7.....	19
Sec. 31, Tp. 29, E. 32, and Sec. 36, Tp. 29, R. 33.....	Am. Z. L. & S. Co. (Gaddis); LaTosca M. Co., 2.....	3
.....	Nugget Mng. Co., 1; Texas Star Mng. Co., 5.....	6
.....	R. Estrada, 1; Bay State Mining Co., 3.....	4
.....	Henry Rothfeld, 2; J. W. Kelley, 1.....	3
.....	J. W. Kirkbride & Co., 3; Chicago Z. M. Co., 1.....	4
.....	Mayne Bros., 1; G. W. Belk, 1.....	2
.....	H. S. Bullard, L. Pimpton, E. Cady, 1.....	3
.....	Leadville Hollow Zinc Mining Co., 2.....	3
.....	Delta Mng. Co., 1; Corn Palace Mng. Co., 2.....	3
.....	Locust Co., 6; J. M. Sully, 1.....	7
.....	Carll & Co., 1; R. A. Starr & Co., 1.....	2
.....	Becker Mng. Co., 1; Blakey No. 2 Co., 1.....	2
.....	Raspberry Co., 1; Cliff Mining Co., 1.....	2
.....	J. M. Mason, 2; Kirkbride & Co. No. 2, 2.....	4
.....	Ewing & Co., 1; Bell & Co., 1.....	2
.....	Maus & Co., 1; Davis Mining Co., 2.....	3
Sec. 13, Tp. 27, R. 33.....	G. W. Armstrong, 6; J. W. Hamilton, 4.....	10
.....	F. L. Harr, 2; F. L. Harrington, 2.....	4
.....	Ed. Blitner.....	1
Sec. 36, Tp. 28, R. 34.....	Hagadorn & Rose, Hagadorn R.....	3
North Hts., Add. to Joplin.....	Harrison, J. O.....	1
Sec. 13, Tp. 28, R. 34.....	J. Rabbow, 1; Miller & Co., 1.....	2
.....	State Bank, 1; Dunham & Co., 1.....	2
.....	Carl Junction Syndicate, 1; Burton & Co., 1.....	2
.....	Gerkey & Co., 1; Barbee & Co., 1.....	2
Cartersville, Sec. 17 and 20, Tp. 28, R. 32.....	Sharpsburg Mining Co.....	1
Sec. 2, Tp. 27, R. 34.....	Hanover L. & Z. Co., 2; Ihlseng & Norton, 3.....	5
.....	Commonw. Z. Co., 1; Geo. Washington Co., 2.....	3
.....	Hardwick & Summer.....	2
Sec. 36, Tp. 28, R. 36.....	Itasca Lead and Zinc Co., 1; Superior, 1.....	2
.....	Indep'ce Mng. Co., 1; Burley & Freeman, 1.....	2
Sec. 15, Tp. 27, R. 33.....	J. R. Brown, 1; Jack Horner Mng. Co., 1.....	2
Sec. 31, Tp. 28, R. 32.....	Free Coinage.....	3
Cartersville.....	Blue Wing.....	6
Webb City.....	Investors' Mining Co.....	1
Near Carl Junction.....	Katy Mining Co., 2; Shackelford & Co., 1.....	3
Sec. 32, Tp. 28, R. 33.....	Jack Johnson M. Co., 1; John Johnson M. Co., 1.....	2
3 miles west of Joplin.....	Jackson Jr., M. Co.....	1
1½ miles northwest of Joplin.....	I Know Mine.....	1
.....	Big Eight Mine.....	1
.....	Phillips & Co.....	1
N. E. ¼, N. E. ¼, Sec. 17, Tp. 28, R. 32.....	Damifino & Ohio.....	2
.....	Argo Mining Co.....	1
.....	Ed. E. Hoffman & Co., sinking.....	1
.....	Stevenson & Co., sinking.....	1
.....	Geo. B. Hornish & Co., sinking.....	1
.....	J. B. Moore & Co., sinking.....	1
.....	Lulu M. Gilbert & Co., sinking.....	1
.....	Geo. M. Taylor & Co., sinking.....	2
.....	M. Leon & Co., sinking.....	1
S. E. ¼, N. E. ¼, Sec. 2, Tp. 27, R. 33.....	Regent Mining Co.....	2
.....	Stinnett & Co.....	1
.....	Jones & Co.....	1
.....	Tenegar & Co.....	1
.....	Lawton & Co.....	2
.....	Roof & Co.....	1
.....	Clayton & Co.....	1
.....	Bannister & Co.....	1
.....	Mayo & Co.....	1
.....	Wetherell & Co.....	1
.....	Cadwalter & Co.....	1

MINING DIRECTORY OF THE LEAD AND ZINC

JAS

Name of owner, lessee or operating company.	Postoffice address.	No. of acres owned or leased.
Kirkbridge Mining Co.....	Joplin.....	Lease 90.....
Kimberly Mining Co.....	Carthage.....	Leased 4.....
Kansas City Milling and Mining Co....	Joplin.....	Leased 45.....
Lead Hill Mining Co.....	Carthage.....	Leased 40.....
Lead Hill Mining Co.....	Joplin.....	Leased 40.....
Lee Moore.....	"	Leased 80.....
Leota Mining Co.....	Carthage.....	Leased 5.....
Lewis, J. F.....	Webb City.....	Leased 2.....
Lincoln Mining Co.....	Joplin.....	Own 20.....
Lucky Tom Mining Co.....	Carthage.....	Leased 6.....
McConnell Mining Co.....	Joplin.....	Leased 4.....
McCullough-Brownlee Mining Co.....	Webb City.....	Leased 80.....
McKinley Mining Co.....	Trenton, N. J., and Joplin.....	Own 60.....
Manhattan Mining Co.....	Webb City.....	Own 40.....
Massasolt Lead and Zinc Co.	Joplin.....	95.....
Massachusetts Lead and Zinc Co.	Carthage.....	Own 40.....
Mignonette Mine.....	"	Leased 4.....
Mistletoe Mining Co.....	Neck City.....	Own 40.....
Missouri Lead and Zinc Co.....	Joplin.....	Own 1,200.....
Missouri Zinc Fields Co.....	Webb City.....	Own 440.....

MINING COUNTIES OF MISSOURI—Continued.

BY—Continued.

Location of the mining land owned or leased.	Name of sub-lessees or company sub-leasing the land.	No. of shafts.
N. E. $\frac{1}{4}$, Sec. 2, Tp. 27, R. 33.....	Black & Co.....	1
	Porter & Smith.....	1
	January Mining Co.....	1
	Bassett & Co.....	1
	Hunt, Rustle & Co.....	1
	Salden & Co.....	1
	McCubbin & Co.....	1
	Sheikless & Co.....	1
	Gann & Co.....	1
N. W. $\frac{1}{4}$, Sec. 35, Tp. 28, R. 31.....	Kimberly Mining Co.....	1
	Imperial Mining Co.....	1
	Central Mining Co.....	1
W. $\frac{1}{4}$, Sec. 11, Tp. 27, R. 32.....	Venango Co.....	1
	Triumph Co.....	1
	D. H. Paulding & Co.....	1
	Monyhan & Gooch.....	1
	Bulen & Co.....	1
E., $\frac{1}{4}$, Sec. 25, Tp. 28, R. 34, near Belle- e south of Joplin.....	Lead Hill Mining Co.....	4
s southwest Reeds Station.....	New Horseshoe Mining Co.....	2
tation.....	Leota Mining Co.....	1
	J. F. Lewis.....	1
W. $\frac{1}{4}$, Sec. 31, Tp. 28, R. 33.....	Blackhawk Mine.....	2
y between Duenweg and Prosperity.....	Feely, Cordell, Hobbs & Good.....	1
N. W., N. W. $\frac{1}{4}$, Sec. 14, Tp. 27, R. 33.....	McConnell Mining Co.....	1
orth of Webb City.....	McCullough, Brownlee & Co.....	2
f Cartersville on Conner land.....	Casmire, Stump & Woodward.....	1
	Setser & Burris.....	1
	Geo. Mosely.....	1
	Earl, Bolen & Clark.....	1
	Goodenough Mining Co.....	1
	Deli, C. Mining Co.....	1
S. W. $\frac{1}{4}$, Sec. 20, Tp. 28, R. 32.....	Sullivan & Young.....	2
	Watson & Mahaffy.....	3
N. W. $\frac{1}{4}$, Sec. 14, Tp. 27, R. 33.....	Geo. E. Starr.....	1
	Chas. E. Eads.....	1
	Claud Calvin.....	1
	Chas. M. Clinton.....	1
	J. A. Goodrich.....	1
	John O'Keefe.....	1
N. W. of Carthage.....	Massachusetts Lead and Zinc Co.....	1
N. W. of Carthage.....	Waddell & Co.....	1
ty.....	Big Kate Mining Co.....	1
	McMillan, Lawrence, Henry & Lane.....	1
	Blake & Sutherland.....	2
	F. M. Walton and Anna Walton.....	3
	White, Warm, Bryant & Co.....	4
$\frac{1}{2}$ and S. E. $\frac{1}{4}$ and W. $\frac{1}{2}$	Boss, Butler, Chase, Dagley, McGavaran, Collins, Tidball, Lyons, Tomlinson, Davis, Jones, Fenner, Baker, Mattes, Thornton, Chew, Chapman, Brown, Norseworthy, Lawyer, Toledo, M. & M. Co., Tarbell, Francis, Davis, Foster, Vincent, Casey, Deardorff, Walcott, Jones, Harvey, Brad- bury, Hicks, Armstrong, Brown, Adams, Sibley, Hock, Walker, Tomlinson, Power, Harrington, King, Kendwig, Duffelmeyer, Paxton, McGee, Johannes, Anderson, Har- vey, Hansford, Felton, Davis, Harrison, Hanekett, Longworthy, Mears, Johann, Gross, Poole, Crampton, Reinmiller, Moss, Gross, Meeker, Buchanan, Roberts, Bel- lamy, Miller, Osborn, Barnett, Wood, Mc- Cullough, Douglas, Eaton, Felton, Long, Coyle, Livingston, Hulse, Homedy, Frey, Hale, Malone, Torr, Coyle, Langon, Pat- terson, Burley, Molley, Young, Armour, Peters, Goodrich, Morgan, Douge.....	97
ity and Cartersville.....	Detroit Mo. Zinc Co.....	1
	Calting & Hunter.....	1
	Hunter & Co.....	1
	Bell & Co.....	1
	Old Colony Zinc & Smelting Co.....	1
	American Zinc Lead & Smelting Co.....	1
	The Duluth Zinc Co.....	2
	Bey Zinc Co.....	1
	J. M. Staight.....	1

MINING DIRECTORY OF THE LEAD AND ZINC ORE

JASPER

Name of owner, lessee or operating company.	Postoffice address.	No. of acres owned or leased.
Missouri Zinc Fields Co.....	Webb City.....	Own 440.....
Mohawk Mining Co.....	Joplin.....	Own 11, leased 40.....
Mohaska Zinc Co.....		Own 160.....
Moonshine Mining Co.....	Joplin.....	56.....
Mt. Arrarat Mining Co.....	Prosperity.....	Leased 10.....
Narragansett Lead and Zinc Mining Co.	Joplin.....	Leased 40.....
North Heights Addition.....		Own 150 town lots....
Ohio Mining Co.	Scotland.....	Leased 40
Old Colony Zinc and Smelting Co.....	Joplin.....	Own 237.....
Oro Mines....	Webb City.....	Leased 40.....
Pearl C. Mining Co.....		Own 8.....
Pearl Mining Co.....	Owensboro, Ky., and Joplin. ..	Own 40
Perry Leases, J. M. Sully, Manager....	Joplin, box 912.....	Own 190.....
Pleasant Valley Mining Co.....	Carthage	40.....
Porto Rico Mining Co.....	Prosperity	Leased 40.....

PRODUCING COUNTIES OF MISSOURI—Continued.

COUNTY—Continued.

Location of the mining land owned or leased.	Name of sub-lessees or company sub-leasing the land.	No. of shafts
Webb City and Cartersville.....	J. W. Grounds.....	1
	Trexell & Co.....	1
	James Allen.....	1
	Oxford Mining Co.....	1
	Alaska Mining Co.....	1
	Aneta Mining Co.....	1
	Seloto Zinc Co. (Tailing Mill).....	
	W. G. Miller.....	
On Plutocrat Lease-Connor Land.....	Thos. J. Steers.....	1
E. ¼ S. W. ¼ and W. ¼ S. E.....	J. R. Holmes, et al.....	2
¼ Sec. 15, Tp. 27, R. 33.....	The Mohaska Zinc Co.....	2
	C. B. Towle, 1 shaft; T. L. Harrington, 1.....	2
	Johnson & Stevenson.....	6
	G. W. Brock & Co., 1 shaft; S. H. Taylor, 1.....	2
	A. H. Mayne.....	2
	J. C. Crisp & Co.....	2
	J. F. Lampkin & Co.....	2
	J. A. Sullivan, & Co.....	2
Fraction N. ½ Nw. ¼. Sec. 12, Tp. 27, R. 33..	United Zinc Co.....	2
Thomas Connor land, Sec. 29.....	Denham Mining Co.....	1
	M. Company.....	1
	John J. M. Company.....	1
	Summit Mining Co.....	1
	Cube Root Mining Co.....	1
Webb City.....	J. D. Cameron.....	1
North Heights Addition to Joplin.....	North Heights Mining and Milling Co.....	5
	George City Mining Co.....	1
	She Mining Co.....	1
	Red Ribbon Mining Co.....	1
	Topeka Mining Co.....	1
	Haygood & Co.....	1
	Kansas City Mining Co. Nos. 1 and 2.....	2
	Parker, Horton & Co.....	1
	Wahos Mining Co.....	1
	Thomas & Co.....	1
North Duenweg.....	D. Flynn.....	1
Neck City.....	Rubber Neek Mining Co.....	2
	Big Indian.....	1
	Close Call.....	1
	Shepard Mining Co.....	2
	Blunt Mining Co.....	1
	Campbell Mining Co.....	1
	Prig More.....	1
	Big Four Mining Co.....	3
Connor tract, south of Cartersville.....	Oro mines.....	2
Midway.....	Wheeler Smith & Co.....	1
N. W. ¼ of S. E. ¼, Sec. 6, Tp. 27, R. 32....	Bailey & Co., (Key West).....	1
	June Rose.....	1
	Randall & Co.....	1
	Soldiers' Home.....	1
N. W. corner Joplin City limits.....	J. W. Perry, 1; Good & Co., 1; Fitzgerald & Co., 1.....	3
	Gaiser & Co., 1; Lone Elm Mining Co., 2; Pig Foot Mining Co., 1.....	4
	Chas. Brown, 2; Lucky Honey Mining Co., 2; Rose & Miller, 1.....	5
	Crowley Mining Co., 3; Goodrich Bros., 2; Holmes & Elvin, 2.....	7
	Budd & Co., 2; John Pack, 1; Chas. Vinson, 1.....	4
	Old Shoe, 2; Griffin & Co., 1; B. Ferguson, 1.....	4
	Whittaker, 1; Broomfield & Co., 2; Rescue Mining Co., 3.....	6
	Wood & Co., 2; J. J. Thompson, 1; Jno. Bannister, 3.....	6
	Marsh & Price, 1; Moore & Moore, 1; Guinn & Co., 1.....	3
	Robinson Mng. Co., 1; McGraw Mng Co., 1.....	2
	Mill No. 1.....	3
2½ miles southwest of Carthage.....	Pleasant Valley Mining Co.....	2
Sec. 34, Tp. 28, R. 32.....	Shaeffer & Shaeffer.....	1
	O'Neil & Bruer.....	1
	Webb, Thompson & Schaffer.....	1
	Morgan & Morgan.....	1
	McLain, Gasten & Setser.....	1
	Kreel & Cage.....	1
	Carrick & Thurman.....	1

MINING DIRECTORY OF THE LEAD AND ZINC ORE

JASPER

Name of owner, lessee or operating company.	Postoffice address.	No. of acres owned or leased.
Porto Rico Mining Co.....	Prosperity.....	Leased 40.....
Rabbit's Foot Zinc Mining Co.....	Joplin.....	Own 40.....
Rannabarger Mining Co.....	".....	Leased 30.....
Regan Mining Co.....	Carthage.....	Own 240.....
Rex Mining Co.....	Joplin.....	Own 1,000.....
Roaring Springs Land and M. Co.....	Joplin.....	Own 208.....
Sadtler Lead and Zinc Co.....	Bethlehem, Pa.....	Own 220.....
Sam Moore Mining Co.....	Joplin.....	Lease 14.....
Short Creek Mining Co.....	Joplin.....	Lease 70.....
South Joplin Lead and Zinc Mining Co.....	".....	Leased 40.....
Sphlux Mining Co.....	Webb City.....	Own 32.....
Standard Lead and Zinc Co.....	Joplin.....	Leased 10.....
Stucky Mining Co.....	Zincite.....	Leased 72.....
The Brooklyn.....	Joplin.....	Leased 7.....
The Garden City Mining Co.....	Webb City.....	Own 40.....
The Howard Mining and Milling Co.....	Joplin.....	Lease 5.....
The M. S. Mining Co.....	Webb City.....	Own 10.....
The Montgomery L. and Z. Mining Co.....	Joplin.....	Own 200.....
Warren Springer and F. J. Page.....	Zincite.....	Own 80.....
Three Friends Zinc Mining Co.....	Carl Junction.....	Own 320.....
The Roberta Mining Co.....	Carterville.....	Own 40.....
Triad Mining Co.....	Webb City.....	Lease 40.....
Troup Mining Co.....	Carterville.....	Own 40.....
United Zinc Companies.....	Joplin.....	Own and lease 160....
Warren Armington.....	Joplin.....	Leased 40.....
Webster Realty Co.....	".....	Leased 40.....

PRODUCING COUNTIES OF MISSOURI—Continued.

COUNTY—Continued.

Location of the mining land owned or leased.	Name of sub-lessees or company sub-leasing the land.	No. of shafts
Sec. 34, Tp. 28, R. 32.....	Frazier & Frazier.....	1
	R. McGee.....	1
	Sterling & Sterling.....	1
Central City.....	Rabbits Foot Zinc Mining Co.....	5
2½ miles west of Joplin.....	Crystal Palace Mining Co.....	1
	Hale, Lead and Zinc Co.....	1
	Pelar & Co.....	1
S. W. ¼ & E. ½ of S. E. ¼ Sec. 29, Tp. 38, R. 22.....	Gorman & Co.....	1
	Grosland & Co.....	1
	Fellows & Co.....	1
	Wrinkle & Co.....	1
	Gate City Mining Co.....	1
	J. A. Mitchell & Co.....	1
3 Miles East of Joplin.....	Louis Gerkey.....	1
	Consolidated Zinc and Lead Co.....	1
	R. M. Bailey & Co.....	1
	Kittinger & Clark.....	1
	Pony Mining Co.....	1
	Gurtchell & Co.....	1
	Palmer & Co.....	1
	Jonah Mining Co.....	1
	Phoenix Mining Co.....	1
	Lewennore & Co.....	1
	Ray & Co.....	1
	Manheim Mining Co.....	1
	Norsworthy & Co.....	1
	Barrow & Co.....	1
1 Mile South of Joplin.....	Drillers' Mining Co.....	3
	A. No. 1, Mining Co.....	3
	Keystone Mining Co.....	1
	Peach Tree Mining Co.....	1
Sec. 10 and 11, Tp. 27, R. 32.....	Sadler Lead and Zinc Co.....	7
Leonard Land—Leadville Hollow.....	Sam Moore Mining Co.....	1
Central City.....	Leddy & Schmidt Bros.....	1
N. W. ¼ of S. W. ¼, Sec. 10, Tp. 27, R. 33.....	John Malang.....	2
Neck City.....	C. J. Brown.....	2
	Neck City Mng. Co., 1; Ruby Mng. Co., 1.....	2
	Monte Cristo, 1; Great Oak Mng. Co., 1.....	2
	C. Myersole Mng. Co., 1; G. L. Cole Mng. Co., 1.....	2
Leadville Hollow.....	Standard Lead and Zinc Co.....	2
Sec. 25, Tp. 28, R. 34.....	Scott & Co., 3; Chapman & Co., 2.....	5
	Walker & Co., 3; Stuckey Mining Co., 1.....	1
	McMurphy & Co.....	1
Sw. ½ Nw. ¼, S. 33, Tp. 28, R. 33. Leonard land	Chitwood Hollow Mining Co.....	1
Nw. ¼ N. W. ¼, Sec. 17, Tp. 28, R. 33.....	S. F. Clark.....	2
Cottonwood lease.....	The Howard Mining and Milling Co.....	4
Prosperity.....	The M. S. Mining Co.....	1
2½ miles northwest of Joplin.....	Ben Bogy Mng. Co., 4; Clinton Mng. Co., 6.....	10
Zincite.....	Bay State Mining Co.....	2
	So. St. Louis Mng. Co., 2; Olympia Mng. Co., 3.....	5
	Jack Knife Mining Co.....	1
Circle City, one-half mile west of Zincite.....	Lot 38 M. Co., 1; Lot 37 M. Co., Florence G. 2.....	3
	Lot 42 Mng. Co., 2; Lot 44 Knox Hall Mng. Co., 1.....	3
	Lot 59 Morgan Mining Co.....	1
One-fourth mile south of Prosperity.....	W. B. Kane.....	1
S. E. ¼ of N. W. ¼, Sec. 6, Tp. 27, R. 32.....	Counterman & Co.....	3
	Roberts & Co.....	1
S. E. ¼ of S. E. ¼, Sec. 21, Tp. 28, R. 32.....	Standard Z. M. Co., 1; Chicago-Joplin M. Co., 1.....	2
	St. Louis Laura S., 1; Anderson & Davis, 1.....	2
	Iuka Mining Co., 1; Forrest Smith & Co., 1.....	2
E. ¼ S. E. ¼, Sec. 32, Tp. 28, R. 33, and N. W. ¼ N. E. ¼, Sec. 12, Tp. 27, R. 33.....	King Jack, 1; North King Jack, 2.....	3
	Lawrence Mng. Co., 1; Robertson & Klock, 1.....	2
	Great Scott, 1; Leedy Mining Co., 1.....	2
	Lackawana M. Co., 1; Walton & Moore, 1.....	2
	Diamond Jack, 1; Scott & Whitaker, 1.....	2
	Conqueror, 3; Silver Shield, 1.....	4
	Lewis & Co., 2; Little & Smith, 1.....	3
	R. L. Dicks, 1; Wiltermood, 2.....	3
	Adams & Finley, 1; Jones & Oakley, 1.....	2
	Baby Boy, 2; Quincy Mining Co., 1.....	3
South of Joplin.....	Little Pete, 2; Blue Bird, 3.....	5
	The Three Johns.....	2
Central City.....	Forty-nine Mining Co.....	1

MINING DIRECTORY OF THE LEAD AND ZINC ORE

JASPER

Name of owner, lessee or operating company.	Postoffice address.	No. of acres owned or leased.
Weyman & McConey	Joplin.....	Own 63.....
Witch Hazel Mining Co.....	"	Leased 10.....
Wilson & Co., J. F.	"	Leased 80.....
Wright Mining Co.....	"	Own 22.....
Yale & O'Brien	"	Lease 40.....

JEFFERSON

Sandy Mines and Mining Co.....	Grafton Ills.....	Leased 40.....
Valle Mining Co.....	Valle mines.....	Own.. 5,000.....

LAWRENCE

Baptist-Methodist-Stewart Land.....	Aurora.....	Leased 40.....
Boston-Aurora Zinc Co.....	Aurora.....	Own 80.....
Boston-Loy Mining Co.....	Mt. Vernon.....	Leased 13½.....
Campbell & Co.....	Aurora.....	Own 40.....
Dalby & Moses.....	Aurora.....	40.....
Decatur Lead and Zinc Co.	Aurora.....	" 40.....
Julia West Mining Co.....	Stotts City.....	" 20.....
Lehnhard, Newman & Falk.....	Aurora.....	" 80.....
Kentucky Mining Co.....	Aurora.....	" 20.....
Mount Vernon Mining Co.....	Stotts City.....	" 237.....
Ozark Range Mining Co.....	Aurora.....	" 52.....
Schmook-Heirs.....	Springfield.....	" 40.....
Spring River Mining Co.....	Stotts City.....	" 30.....
The Reel Huston Mng. and Smelting Co	Wentworth, Newton Co.....	" 14.....
Terre Haute Land and Mining Co.....	Aurora.....	Leased 40.....
Sphalerite Mining Co.....	Aurora.....	" 7.....
United Zinc Companies.....	Aurora.....	Own 84.....

MADISON

Catherine Mining Co.....	Fredericktown.....	Own 1,700.....
Mine La Motte.....	Mine La Motte.....	Own 38,000.....

MILLER

Gageville Mining Co.....	Jefferson City.....	Own 500.....
Little Nugget Mining Co.....	"	Lease 120.....
Pope lands, W. S.....	"	Own 1,100.....

PRODUCING COUNTIES OF MISSOURI—Continued.

COUNTY—Continued.

Location of the mining land owned or leased.	Name of sub-lessees or company sub-leasing the land.
N. W. $\frac{1}{4}$, Sec. 31, Tp. 28, R. 32.....	Meyer & Noble, 1; Kathleen R., 1..... Next Week Mng. Co., 1; Red Bird, 1..... McCord & Bolter, 1; Gray Squirrel, 1.....
S. E. $\frac{1}{4}$ N. W. $\frac{1}{4}$, Sec. 6, Tp. 27, R. 32.....	Albert F. Frye.....
N. E. $\frac{1}{4}$ N. E. $\frac{1}{4}$, Sec. 16, Tp. 27, R. 33.....	J. F. Wilson & Co.....
E. $\frac{1}{4}$ S. W. $\frac{1}{4}$ S. E. $\frac{1}{4}$, Sec. 32, Tp. 28, R. 33.	Keno Mining Co., 1; Z. Jackson Mining Co., 1; Old Hickory, 1.....
N. W. S. E. Sec. 32, Tp. 28, R. 33.....	Consolidated Zinc and Lead Co.....

COUNTY.

Near Jarvis, Jefferson county, Mo.....	E. Myersburg & Dr. W. Park.....
On county line in both, Jefferson and St. Francois counties.....	Valle Mining Co.....

COUNTY.

N. W. $\frac{1}{4}$ of S. E. $\frac{1}{4}$, Sec. 6, Tp. 26, R. 25....	W. L. Biglow, 1; Clark & Co., 1; Scott & Co., 1; Spell & Co., 1.....
1 $\frac{1}{2}$ miles east of Aurora R. R. station.....	Boston and Aurora Zinc Co., 5; Myrtle J. Mining Co., 1.....
Stotts City.....	W. B. Skinner.....
S. E. $\frac{1}{4}$ of S. W. $\frac{1}{4}$, Sec. 5, Tp. 26, R. 25.....	Campbell & Co.....
At Aurora.....	E. K. Johnston, 1; Perkins & Co., 1; Wm. Smith & Co., 1; Melvin, Putnam & Co., 1....
$\frac{1}{4}$ of a mile east of Aurora.....	Summers & Simpson, 1; Jones & Co., 1; Spruce & Co., 1; Douglas & Thomas, 1; R. W. R., 1.
Near Stotts City.....	Julia West Mng. Co., (ore developed at 164, 240 and 290 feet).....
N. $\frac{1}{4}$ N. W. $\frac{1}{4}$, Sec. 7, Tp. 26, R. 25.....	Gold Nugget Mng. Co., 1; Little Eastern, 1; Needmore, 1; Badger, 1.....
At Aurora.....	Tooker & Co., 2; Ohas. L. Boyd & Co., 2; Bradford & Co., 2; O. Wood & Co., 1; Ohio Z. Co. 3
$\frac{1}{4}$ mile west of Stotts City.....	Keystone Mng. Co., 1; C. O. C. Mng. Co., 1; Southworth, 1; The Illini, 1.....
At Aurora.....	World-Herald M. Co., 2; Hays City M. Co., 2; Ewing & Co., 2; Sherwood M. Co., 1; Indiana M. Co., 1.....
S. E. $\frac{1}{4}$ S. E. $\frac{1}{4}$, Sec. 6, Tp. 26, R. 25.....	Sundry lots leased to miners.....
At Stotts City.....	Spring River Mining Co.....
Lawrence Co. 1 $\frac{1}{2}$ miles N. E. Wentworth.....	The Game Cock Mine, Reel Huston Mng. Co., Paul Schmock M. Co., 2; Sphalerite M. Co., 1;
S. W. $\frac{1}{4}$ of S. W. $\frac{1}{4}$, Sec. 5, Tp. 26, R. 25.....	Lulu M. Co., 1; Sasafra M. Co., 1.....
At Aurora.....	Sphalerite, 2; Chicago-Aurora Mng. Co., 1; Ramey & Co., 1.....
N. W. $\frac{1}{4}$ of S. E. $\frac{1}{4}$, N. $\frac{1}{2}$, lot 1 S. W. $\frac{1}{4}$, 7-14-100 acres of N. $\frac{1}{2}$, lot 2 S. W. $\frac{1}{4}$, 7-26-25....	United Zinc Companies.....

COUNTY.

Near Fredericktown, Tp. 33, R 6, east of 5th Principal Meridian.....	Catherine Mining Co.....
Tps. 34 and 33, Ranges 5 and 6, east of 5th Principal meridian.....	Mine La Motte.....

COUNTY.

E. $\frac{1}{4}$ N. E. $\frac{1}{4}$, Sec. 5, Tp. 14, R. 41.....	Gageville Mining Co.....
E. $\frac{1}{4}$ N. E. $\frac{1}{4}$, Sec. 6, Tp. 13, R. 41.....	Little Nugget Mining Co.....
Sec. 1, 7, 8, Tp. 40, R. 13.....	Capps Mines.....

MINING DIRECTORY OF THE LEAD AND ZINC

MOI

Name of owner, lessee or operating company.	Postoffice address.	No. of acres owned or leased.
Gray Mining Co.	Sedalia.....	Leased 52.....
Little Tom, Jacob Craycroft.....	Zwanzig.....	Own 40.....
The Morgan County Mining Co.....	Glensted.....	Own 40; leased.....

NEV

A No. 1 Mining Co.	Joplin, box 435.....	Lease 20.....
Aunt Patty Mining Co., H. H. Gregg.....	".....	Own 80.....
Boston-Springfield Zinc Co.....	".....	Own 320.....
Bale Lease—Colorado Mine.....	Joplin.....	Lease 10.....
Columbus Mining Co.	Galena, Kans.....	Lease 15.....
Easy Street Mining Co.	W. G. Wells, Neosho.....	Own 80.....
German-American Lead Mining Co.....	Joplin.....	Lease 39.....
Ginzing Mine—Clark Craycroft.....	".....	Lease 40.....
Granby Mining and Smelting Co.....	Granby.....	Own 10,000.....
Guengerich Mining Co.	Joplin.....	Lease 20.....
Hudson & Co.....	Gregg.....	Lease 40.....
Hutchinson Mining Co.	Joplin.....	Lease 80.....
Keystone Lead and Zinc Co.....	Joplin.....	Lease 40.....
Knoxall Mining Co.....	Neosho.....	Own 84.....
Neosho Little Four—J. B. Davis land..	Granby.....	Lease 35.....
Nemo Mining Co.....	Joplin.....	Lease 120.....
Redding Mining Co.....	Joplin.....	Own 40.....
Ruby Mining and Smelting Co.....	".....	Own 80.....
St. Paul Mining Co.....	".....	Own 160, lease 40.....
Saganaw Lead and Zinc Co.....	Saganaw.....	Own 783.....
Shoal Creek Mining Co.....	Joplin.....	Lease 40.....
Slow Go Mining Co.....	".....	Lease 2.....
Spring City Mining Co.....	".....	Lease 40.....
South Shoal Creek Mining Co.....	".....	Lease 40.....

PRODUCING COUNTIES OF MISSOURI—Continued.

COUNTY.

Location of the mining land owned or leased.	Name of sub-lessees or company sub-leasing the land.	No. of shafts.
1½ miles west of Florence	Tam Stanley	3
N. W. of N. E. ¼, Sec. 26, Tp. 41, R. 18	Jacob Craycroft	1
3 miles N. W. of Glinsted	George F. Boothie	2

COUNTY.

On Roaring Springs Land & Mng. Co.'s land	A No. 1 Mining Co.	4
Sec. 32, Tp. 26, R. 33	H. H. Gregg	3
Mines located in Sec. 32, Tp. 26, R. 33	Everett Z. and L. Co., 2; Viola, 3; Bates & Hawkins, 1; Youngblood, & Co., 1; Fairmount Mining Co., 1	8
	Connor & Gains, 1; Monitor L. and Z. Co., 3; McDougal & Co., 1; Dickey & Pickett, 1; Sumner, Hickok & Co., 3	9
	Kirsh & Co., 1; Savage & Co., 1; Temple Chapman, 2; Eddington Mining Co., 1; Scotch Lead and Zinc Co., 4	9
2 miles S. E. of Joplin	E. D. Demster	3
Jackson Hollow	Jackson Hollow Zinc Co., 1; King Mining Co., 1; Three Kings Mining Co., 1	3
Spurgeon Section 31	Hub Mining Co., 1; Phillips & McEwen, 1; Freman & Wellep, 1; Hasse & Heaton, 1	4
	L. J. Dachling, 1; Bushnell Bros., 1; D. R. E. Carrier, 1; Joe Anderson, 1; Osler Bros., 1	5
N. ¼ S. W. ¼, Sec. 20, Tp. 27, R. 32	Thayer & Wilkins, 1; I. W. Reinmiller, 1	2
8 miles south of Joplin	Clark Craycroft	2
Secs. 5, 6, 7, Tp. 25, R. 34; Sec. 1, 12, Tp. 25, R. 31	Granby Mining and Smelting Co., 27; Mascot Mining Co., 2; Morning Glory, 3; Little Boss, 3	35
W. ¼ N. E. ¼ S. W. ¼, Sec. 23, Tp. 27, R. 33	Brace & Co.	1
Sec. 20, Tp. 27, R. 33	Patton & Co., 2; Anne Rooney & Co., 2; Stoney & Co., 1	5
E. ¼ Sec. 20, Tp. 27, R. 33	Kelter & Co., 2; Snow & Co., 1; Robinson & Co., 3	6
N. W. ¼, S. E. ¼, Sec. 10, Tp. 26, R. 33	Bald Knob Mining Co.	1
Spurgeon	Spiva & Williams, 2; Jas. Bishop, 1; D. R. Carrier, 1; Suchrist, 1; Coop & Hampton, 1	6
	Ford & Walker, 1; Felmelee & Co., 1; Cora Jennette Mining Co., 1	3
N. E. ¼, S. W. ¼, Sec. 12, Tp. 25, R. 31	Neosho Little Four, 2; Homestake Mng. Co., 1; Homestake No. 2, 1; M. & M. Mng. Co., 1	5
Section 35	A. Clark & Co., 1; Geo. Bass & Co., 1; I. Miswiner & Co., 1; C. Galaway & Co., 1; B. Johnson, 1	5
S. W. ¼, N. E. ¼, Sec. 35, Tp. 27, R. 33	D. Smith, 1; Geo. Snipe, 1; J. H. Kelso, 1; Geo. Gardner, 1; Fred Basori, 1	5
E. ¼, N. E. ¼, Sec. 22, Tp. 27, R. 33	S. M. Smith	1
N. ½, Sec. 4, Tp. 26, R. 33; S. ¼, Sec. 34, R. 33;	Henry Digby, lessee, 1; G. A. Bush, 1	2
N. ½, Sec. 36, Tp. 27, R. 33	J. C. Godding, 1; Raines & Co., 1; Sneed & Co., 1	3
Secs. 20-29-30, Tp. 27, R. 32	Cadmus Mng. Co., 2; Colonial, 2; McDaniel & Co., 1; Preddy & Co., 1; Douglas & Co., 2	8
N. W. ¼, N. E. ¼, Sec. 35, Tp. 27, R. 33	Stephens, Miller & Co., 1; Gillett, Aimsley & Co., 1; John Isaacs & Co., 2; Craig & Clark, 2	6
1½ miles south of Joplin	Demuster, Herman & Co.	1
Spring City	La Salle Mining Co., 2; Jay Bird, 2	4
Sec. 2, Tp. 26, R. 33	M. D. Reding, 1; A. P. Clark, 1; J. T. Hurt, 1; Frank Clark, 1	4

ST. FRANCOIS

Name of owner, lessee or operating company.	Postoffice address.	No. of acres owned or leased.
Central Lead Co.....	Roe Building, St. Louis.....	Own 1,654.....
Columbia Lead Co.....	Esther.....	Own 941.....
Desloge Consolidated Lead Co.....	Desloge.....	Own 2,800.....
Doe Run Lead Co.....	Doe Run.....	Own 4,000.....
St. Joseph Lead Co.....	Bonne Terre.....	Own 6,000.....
The Union Lead Co.....	Security Building, St. Louis.....	Own 40.....

TANEY

Johnson & Wheeler.....	Kirbyville.....	Own 10.....
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WASHINGTON

Boulton, George D.....	Potosi.....	Own 8,000.....
Renault Lead Co.....	Palmer.....	Own 10,624.....
Shibboleth Lead Mining Co.....	Cadet.....	Own 1,760.....

COUNTY.

Location of the mining land owned or leased.	Name of sub-lessees or company sub-leasing the land.	No. of shafts.
Flat River Tp. 36, R. 5, east 5th principal meridian.....	Central Lead Co.....	2
Near Flat River, Tp. 36, R. 5, east 5th principal meridian.....	Columbia Lead Co.....	2
Deslodge, Tps. 36 and 37, R. 4 and 5, east 5th principal meridian.....	Deslodge Consolidated Lead Co.....	2
Tps. 36 and 36, R. 4 and 4, east of 5th principal Meridian.....	Doe Run Lead Co.....	3
Tps. 37 and 38, R. 4 and 5, east of 5th principal meridian.....	St. Joseph Lead Co.....	8
1/4 miles east Flat River Postoffice.....	The Union Lead Co.....	1

COUNTY.

Sec. 36, Tp. 22, R. 21.....	John S. Wheeler.....	2
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COUNTY.

Near and at Potosi.....	Hugh McGregor, Agent.....	6
Tps. 36 and 37, R. 1 E., R. 1 W., 5th P. M.....	Renault Lead Co.....	35
Tp. 38, R. 3, E. of 5th P. M.....	Shibboleth Lead Mining Co.....	30

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